

# THE AUTOMOBILE

WEEKLY

NEW YORK—THURSDAY, MAY 16, 1907—CHICAGO

10 CENTS

THE WINTON MOTOR CARRIAGE CO., Cleveland, O., U. S. A.

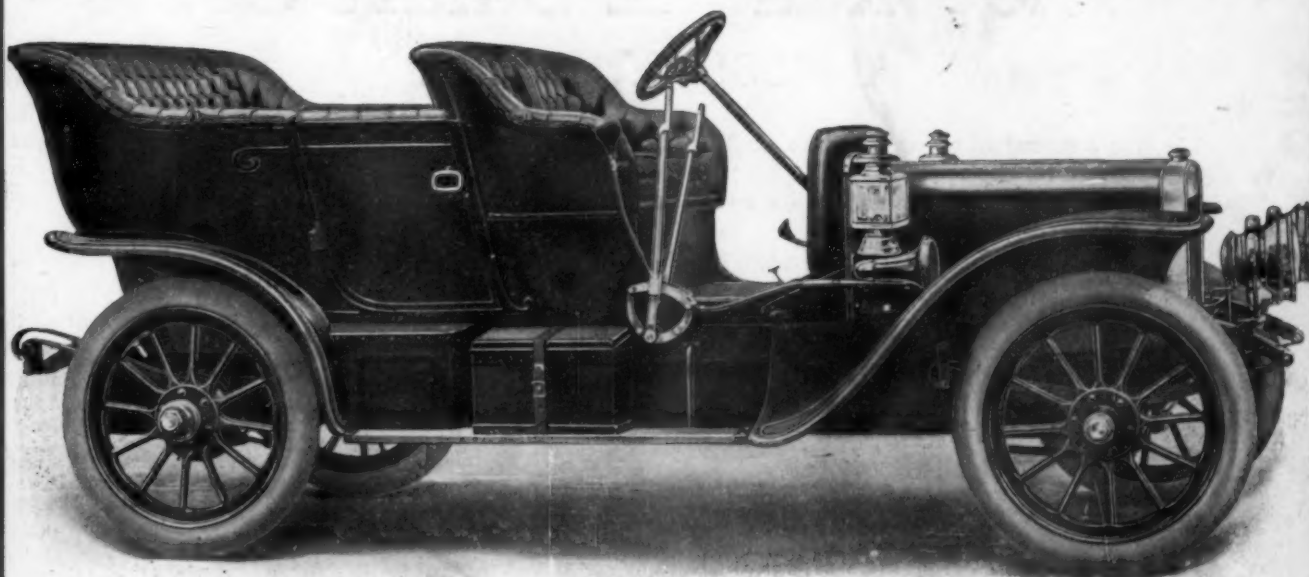
MEMBER A. L. A. M.

We conduct our own Sales Branches in New York, Boston, Chicago, Philadelphia, Pittsburg, Detroit and London

**IT IS NO SECRET** in the trade that it is practically impossible to sell a car of another make to the man who has driven a Winton.

This condition results from the thorough satisfaction that Winton owners enjoy and the common-sense rule that the man who is satisfied is not easily led into exchanging known merit and proved enjoyment for a package of promises. ¶ If you have had disappointing experiences in motoring, or if you are buying your first car and want to avoid troubles and expense, let your choice be a durable, good-faith

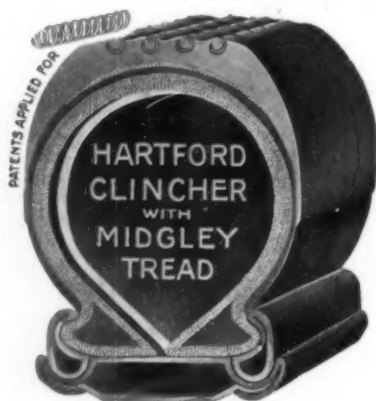
# WINTON



30-H.P., Type X-I-V, \$2,500

40-H.P., Model M, \$3,500

Runabouts at the same prices. Limousines \$1,000 higher



## Safeguarded by the Midgley Tread

the new, effective, non-skid device built  
right in the tire

Your car is equipped for regular or emergency service as  
it could not be equipped in any other way.

By a simple reversal, the detachable ring of the Midgley Universal Rim  
will take either a Dunlop or Clincher Tire of corresponding size.

Let us send you special booklet telling all about it, including "Clinchers"  
in "millimeter sizes," for the perfect fitting of rims on all types of foreign  
cars. Or call at any branch or agency for inspection and a demonstration.

### The HARTFORD RUBBER WORKS CO.

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As an illustration to show the diversity of the production of—

## The Biddle & Smart Co.

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We give a record of seven car-loads of Automobile Wood-work shipped from our factory during the  
last six days of April.

First car-load Top Runabout Bodies and Limousines, completely upholstered and finished.

Second, 100 sets body stock to be used in building metal bodies.

Third, Fourth, Fifth and Sixth, car-loads of Touring Car bodies, all completely upholstered and painted.

Seventh, Touring Car Bodies, in the White, for Machines selling for \$4,500.00.

Above production was completed entirely in our own plant, under one management, and for one profit;  
an actual statement of facts which should be of decided interest to Automobile Manufacturers who require  
deliveries, quality and quantity.

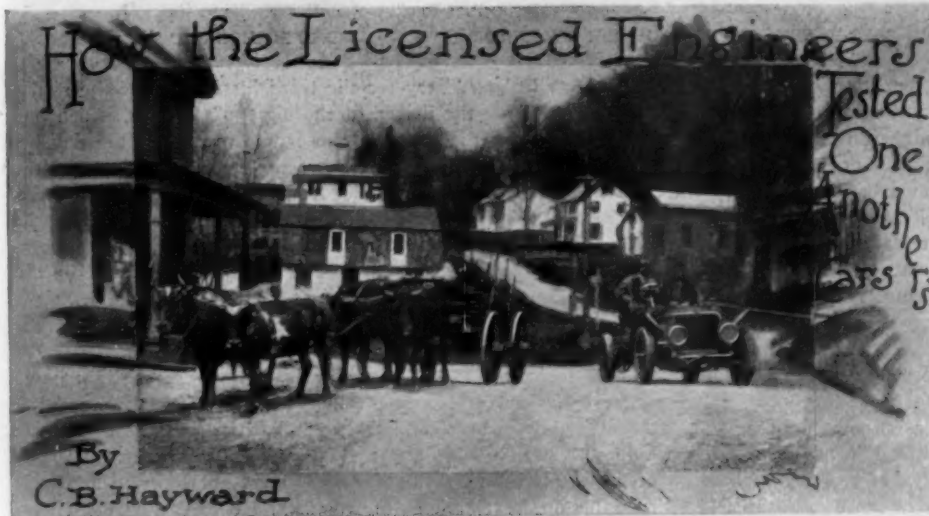
Incidentally, the shipment for the month consisted of fifteen separate car-loads in addition to a large  
number of local deliveries.

## The Biddle & Smart Co.

AMESBURY, MASS.

Manufacturers of Automobile Bodies of every description

# THE AUTOMOBILE



A TYPICAL BIT OF CONTRAST BETWEEN THE OLD AND THE NEW.

NOT a bonnet lifted of necessity and but three punctures. That, tersely, tells the story of the third run of the Mechanical Branch of the Association of Licensed Automobile Manufacturers, held from Hartford, Conn., on Friday last. Add to this weather that not even the wisest of downeast prophets could have foreordained to measure, roads that were a mighty agreeable disappointment, and a route unequalled for picturesqueness, and absolutely nothing was wanting to make the run ideal from every point of view. To add a bit of zest, the route was chosen to bring out the mettle of the cars in the prime essentials of speed, endurance and hill climbing, and the manner in which every obstacle was made light of became a cause for considerable congratulation, particularly to those who could look back but three years to the first engineers' run when it was impossible to go fifty miles consecutively without developing numerous acute cases of "tinkeritis," the procession seldom maintaining its original formation even as far as the first control.

Twenty-two cars lined up on Capitol avenue in Hartford, at the association laboratory and were sent off but a short time after the scheduled hour of 9 o'clock with their burdens of some sixty odd engineers of the Licensed Association and their friends. President Cutler, of the association; ex-President George H. Day; M. J. Budlong, president of the Electric Vehicle Company, and Vice-president Albert L. Pope and R. L. Winkley, of the Pope Manufacturing Company, were on hand to give the cars a good send-off.

The Autocar, bearing "No. 1," was let out to such good purpose that it seemed as if the five-mile stretch to Wethersfield had been eliminated, so close together did they appear. Clear of the latter's skirts, throttles opened up notch by notch, and the long, snaky line drew out until two or three miles separated its head and tail. In addition to tipping off the weather man well in advance, there must have also been some whispering in the ears of the rural powers that be, for, as Henry Souther, who set the pace, put it, "all speed laws were off for the day." There

wasn't so much as the sign of a "cornstubble" or the merest suspicion of a trap, though it might have pocketed enough to lighten the burden of village revenues for a year to come.

Middletown, the first control, which was 16 or 17 miles from Hartford, according to who told you the story, was reached by the pacemaker in 26 minutes, and just as regularly as if they have been equidistant points on a cable that was being reeled in, the remainder of the line became swallowed up in the group of cars on Middletown's main thoroughfare at the rate of one a minute. The No. 3, Locomobile, with A. L. Riker at the wheel, and David Ferguson, of the Pierce Company, beside him, which was my first assignment, never had a chance to approach its limit, the pointer of the speedometer wavering about the 45 mile mark.

A five-minute rest to catch breath, hunt up new assignments and exchange congratulations, and then the drivers and their passengers dove into tool lockers and brought forth chains, for there were dire tales told of the state of the roads ahead. At the end of a twenty-minute halt, the cry of "all aboard" rendered in true railroad fashion by the ubiquitous Downs, sent all hands scurrying to their new posts and the bunch again became transformed into a thin line.

## The Roads Were a Very Agreeable Disappointment.

Sad to relate, with Middletown were left behind the fine stretches of macadam and the roads dropped back to the primeval type of cow-track engineering that dropped them into hollows and took them straight up over the hilly rises, just as if they had been laid out by something about as methodical as a meandering bovine. But they were good, nevertheless—far better than anyone had anticipated, and the chains were totally superfluous. Most of us had looked forward with misgivings to getting into the red clay country—the stuff that bricks are made of and that sticks far closer than a brother—but there was no sign of it nor any other kind of mud, except in occasional holes, a series of which on a twisting down-grade kept the passengers between heaven and earth pretty continually.



BROCK, DOWNS, AND CUTLER.





HAROLD L. POPE IS INTERESTED.



SAYS HENRY SOUTHER TO JOHN WILKINSON.



DAVID FERGUSON AND A. L. RIKER.

The rate at which those drivers took that 10-mile stretch of corkscrew road with its water breaks and utter lack of surfacing would have made a man's hair stand straight on end with pure and unadulterated fear only a few years ago. Cars may not ride much easier now than then, judging from a back seat point of view, because speeds have more than doubled in the interim, but a knowledge of how to make springs has certainly been gained—to the extent at least that they are calculated to stand endless punishment even with a full load of passengers up. I did this stretch on the front seat of a Corbin, and the way it took the hills and kept the pace was better than a volume of testimonials on air-cooling. On the stretch to Goodspeed's Ferry, the big Pierce Arrow attached half a knife-edged horseshoe to its left driver, while just before the ferry itself was reached another one of the cars went flat on a driver, but continued and made repairs while waiting its turn for the *General Spencer*, which with its limited capacity for autos puffed across with three at a time.

Strange to relate, these few mishaps were concentrated on the best part of the run. After the little ferry had completed its work of shifting the line across the Connecticut in sections, there was half a mile or so of excellent going to East Haddam—the lunch control.

Within plain sight of the noon stopping ground was a very dream of a rise; it started from a gully right at the river level and went up like a shingle roof so that even "Dobbin" had to take it on the low and that with painful jerks. The drivers feasted their eyes on it for an hour or more and planned a mental campaign of assault.

At the "all aboard" cry for the third installment of the run, I climbed up beside the driver of the big "50" Haynes, which had been driven over the 100-mile run from New York the day before, as had also the Studebaker, the 8-cylinder Hewitt, the Matheson and the Locomobile from Bridgeport. Of course, the managers of the run, Messrs. Clinton, Wardle and Downs, saw that the formalities were complied with—they always do; the cars were lined up in the proper sequence and sent off at regular intervals, with the usual admonition to the drivers to keep their distance, and the drivers totally disregarded it, also quite as usual—they always do. And we were no exception to the rule. There was a slight down grade, and we were off on the high almost before the word left Wardle's mouth, bent on catching and sticking to the car ahead. A few hundred yards further along and there was a turn to the left along the river bank. "Too bad, we're not going to take that hill after all," exclaimed the driver; "I wanted to have a try at it." And he expressed the sentiment of the majority. But there were more to come, and before the day was over if there had been an engine with a constitutional ailment or a brake that failed to do its duty it would soon have come to light.

If you told the average man who only knows the wooden nutmeg State from the windows of the railway car that it could boast as trying a lot of hills as the most ardent taker of rises on the high could pine for, and as charming a panorama of scenery as any country not actually mountainous affords, he would be most apt to think that some of the old colony's blood ran in your veins, and, given half a chance, you would make wooden nutmegs,



THE GROUP PICTURE OF THE A. L. A. M. ENGINEERS WAS TAKEN AT EAST HADDAM DURING THE NOON CONTROL.





THOMAS FLYER EATING UP A LONG HILL.

picture would have shown us poised between heaven and the seats at about the level of the back of the tonneau most of the time, until we fairly had to beg for mercy, reminding our friend that if he would not slow up he could at least give us warning in due time, for which we were rewarded by an occasional "hold fast!" There *were* springs on that car, for I took the trouble to look and see if there was anything left of them after the run; they were all there and in good shape, despite the marvelous projecting abilities they had displayed when striking some of those fine "thank-you-marms" at full tilt, and which seemed more than enough to bend them double, time and again.

The Columbia testing car, with Eugene Mertens at the wheel, which acted in the dual capacity of a repair car and the chariot of the Columbia photographer, found its services in the former rôle at a discount, as its bulky tool chest of parts was never opened, and spent most of the run as an advance pacemaker. Even straightaway stretches have their pitfalls, and the combination of a trolley car and a woman in a buggy coming together on a narrow bridge was hard to dodge. It was a case of hit the woman or take the ditch, and Mertens chose the latter. The car brought up against the usual telegraph pole and hung right side up over the brook, supported by a huge square beam providentially placed there. When, with the aid of a block



POPE-HARTFORD ROUNDING THE HAIRPIN TURN ON GLASTONBURY HILL IN FINE STYLE.

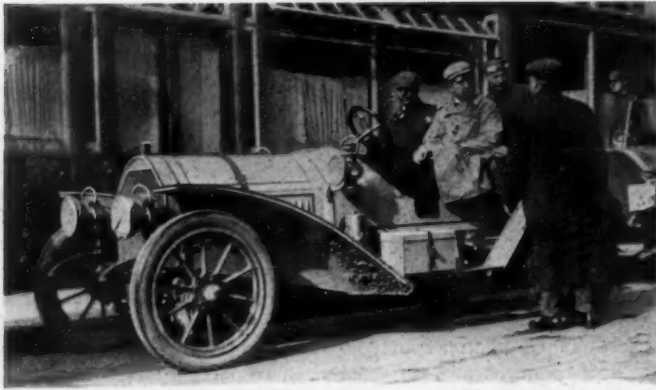
too, or turn them out of anything else if it happened to be cheaper. But it's a fact, none the less, and only another illustration of the necessity of departing from the beaten path of traffic when it is desired to really see the country.

Nearing the end of this third control, warning of a long, hard pull just ahead was given. It was the South Glastonbury hill. "Don't try to rush it, and give the car ahead plenty of leeway," was the warning. The hill justified expectations, and made up in part for the disappointment at not being able to try conclusions with the rare specimen at East Haddam. To add to its joys, it had a typical hairpin turn halfway up, while ruts and boulders made the going anything but good. It was a plain case of drop right down to first and open the throttle wide for the majority, but all took it at remarkably good speed, and there were some displays of masterly driving which brought applause from the pacemakers and checkers assembled to watch taking the turn.

The last change was made at Cobalt, and to equalize matters a little better I shifted to the Studebaker instead of the Oldsmobile, for which my assignment called. I don't know whether to regret the choice or not, for it is doubtful whether there was much to choose between them—that is chauffeurs—not cars. Certain it is that that particular knight of the wheel gave us a most unholy half hour of it in getting down those hills. A moving



OLDSMOBILE CLIMBING AN ENGINE-TRYING RISE.



THOMAS FORTY; H. T. CLINTON BESIDE DRIVER AND H. E. COFFIN.

and tackle and many willing hands the car was again on the road, a push of a few yards started the motor going as if nothing had happened. The mishap occurred between Portland and Glastonbury, and in another half hour the procession filed over the bridge from East Hartford and down through the streets of the city back to the starting place, concluding the most successful run of the kind ever held.

#### Results of the Mechanical Sessions.

The Committee on Tests met on Wednesday, and at the session held on Thursday, which was largely attended and one of the most instructive held thus far, the deliberations of the former were taken into consideration, together with the results of their tests, which was supplemented by a thorough canvass of the methods employed generally in determining horsepower ratings. It was found that there was very little variance in the ratings used by American manufacturers and the results as determined by the formula adopted recently by the Royal Automobile Club.

The formula that has been adopted, and which will be known as the A. L. A. M. standard of horsepower rating, was suggested by that recently adopted by the English club. It is  $\frac{D^3 \times N}{2.5}$  in

which  $D$  represents the diameter of the cylinders squared, times  $N$  or the number of cylinders, divided by 2.5, which is a constant computed from the known horsepower of a large number of the best known American four-cylinder motors.

Following the recommendations of the Tire Committee, action was taken looking to the adoption in the near future of fundamental standards, with a view to the elimination of the numerous annoyances now arising from the use of various sized rims and tires. Suggestions for a standard rim were offered and a meeting with the Rim Association arranged, to draw specifications for a standard rim for detachable, as well as for clincher tires.

The needs of the garage situation were also taken into consideration, and in view of the great variations now existing between the requirements of garage construction and the regulations of the fire insurance companies, a committee was appointed



SIX-CYLINDER FRANKLIN; E. H. CUTLER IN TONNEAU.

to confer with the latter in order to formulate a set of regulations that would meet the requirements of the Board of Fire Underwriters, eliminating many of the unnecessary rules.

In order to comply with the numerous requests made to the Mechanical Branch by other engineering and scientific organizations for the results of tests and experiments, the matter of appointing a publication committee to take this work in hand was considered. A. L. Riker, Coker F. Clarkson and Harry T. Clinton were appointed to constitute it.

Cooling and lubricating systems were the subjects for consideration at the morning session on Thursday, which began with the reading of a paper on "Radiation," by Edward R. Hewitt, who went into the minute details of the subject from a purely scientific standpoint, and showed how the results of early researches had been applied to practical cooling of the gas engine. There were illustrated talks on lubrication by Mr. Healey, of the Pedersen Manufacturing Company, and Charles C. Dodge, of the Dodge Lubricator Company.

The remainder of the Thursday session was devoted to an inspection of the association laboratory, examining the new testing machinery and facilities that have been installed during the past year. Up to the present engine tests have been carried out on a four-cylinder 24-horsepower Columbia motor, and during the course of the discussion on the subject of inlet valve timing it was suggested that motors from other factories be experimented



KNOX AND OLDSMOBILE APPROACHING THE FERRY.

with. Offers from the George N. Pierce Company for a six-cylinder 60-horsepower motor; the Northern Motor Car Company, for a four-cylinder 50-horsepower motor; the H. H. Franklin Manufacturing Company, a six-cylinder 40-horsepower motor, air-cooled, and the E. R. Thomas Detroit Company for a four-cylinder 40-horsepower motor, were received and accepted.

The following engineers were present: H. M. Coale and John G. Utz, Autocar Company; Reynold Janney, Buick Motor Company; M. S. Hart, J. W. Swan, Corbin Motor Vehicle Corporation; H. P. Maxim, C. F. Barrett, C. E. Reddig, Electric Vehicle Company; John Wilkinson, F. J. Haynes, H. H. Franklin Manufacturing Company; Edward R. Hewitt, A. F. Masury, Hewitt Motor Company; D. G. Farr, J. G. Jones, Knox Automobile Company; A. L. Riker, E. F. Russell, Locomobile Company; J. G. Perrin, M. S. Young, M. Z. Viau, Lozier Motor Company; V. M. Gunderson, A. L. Pfitzner, Northern Motor Car Company; R. B. Jackson, G. W. Dunham, Olds Motor Works; D. Ferguson, George N. Pierce Company; L. D. Hubbell, F. W. Cooke, A. M. Holcombe, Pope Manufacturing Company; Harold L. Pope, Ned Laurence, F. T. Sanborn; F. C. Thompson, Pope Motor Car Company; Robert Jardine, Charles Jardine, Royal Motor Car Company; C. H. Calkins, C. E. Sparks and P. Dumont, Studebaker Automobile Company; H. E. Coffin, E. R. Thomas Motor Company; F. D. Howe, William Brooks, Waltham Manufacturing Company; C. R. Greuter, Matheson Motor Car Company; Russell Huff, Packard Motor Car Company; Ed. Noble, Haynes Automobile Company; W. H. Storing, Peerless Motor Car Company, and Henry Souther, the association's expert.





FROM CALDWELL ONE OBTAINS A MOST PICTURESQUE VIEW OF NORTHERN NEW JERSEY'S BEAUTIFUL ROLLING COUNTRY.

NEWARK, N. J., May 13.—With its constantly increasing membership of nearly eight hundred to draw from, the New Jersey Automobile and Motor Club is assured of a substantial entry list for its three-day endurance contest, May 30, 31 and June 1. The route for the first day will have a total mileage of 121.9, starting from the clubhouse at Broad and Chestnut streets and continuing to Washington, and thence returning. Yesterday the Contest Committee, composed of H. A. Bonnell, chairman; Joseph H. Wood, L. T. Wiss and Dr. James R. English, accompanied by several newspaper representatives, made the final arrangements by going over the route in Mr. Wiss' Packard and F. E. Boland's National. The course was measured, and the roads were found to be in a generally good condition, excepting occasional stretches where the highway is now in process of repair. The route is one which will give all sorts of road conditions, and includes the climbing of Schooley's Mountain, one of the most trying ascents in New Jersey.

All of the controls have been decided upon, and officials will be stationed at each one of these to take the time of the cars as they arrive. There will be five controls, the first of which will be located at the Mansion House in Morristown. The distance from Newark is 31.9 miles. The next will be at German Valley, and the third at the American House in Washington. Here an hour will be allowed for lunch before proceeding on the homeward trip, the first stop being at New Hampton. Somerville will be the next control. The last control will be in this city, where the cars will be locked up for the night.

The second day's run will be to Atlantic City by way of Philadelphia and the third day will be occupied in the return by way of the Shore road.

The cars will carry observers, there must be a full complement of passengers, and no stop of a car for repairs or other cause can be made without penalization, save in the event of tire trouble. In the matter of penalization cars must conform to schedule within five minutes either way. Penalizations are points per minute or fraction thereof for the following: To arrive at any control more than five minutes before or

after schedule time, 2 points; to stop car or motor between controls without making repairs or adjustments, 3 points; to stop car or motor to make repairs, adjustments, or replacements, 2 points; to make repairs or replacements without stopping motor, 1 point.

This is the route and the distances for the first day as announced by the contest committee:

Going.		Coming.	
Bloomfield .....	7.7	New Hampton .....	70.4
Glen Ridge .....	8.4	Junction .....	71.4
Montclair .....	9.4	Glen Gardner .....	72.5
Verona .....	11.5	Clinton .....	77.7
Caldwell .....	12.9	Annandale .....	79.1
Pine Brook .....	15.7	Lebanon .....	81.5
Parsippany .....	21.4	Mechanicsville .....	86.1
Denville .....	24.8	North Branch .....	90.7
Mt. Tabor .....	26.1	Somerville .....	94.2
Morris Plains .....	29.5	Bound Brook .....	99.7
Morristown .....	31.9	Dunellen .....	104.
Mendham .....	39.	Plainfield .....	107.
Chester Roads Hotel .....	44.	Scotch Plains .....	109.5
Chester .....	44.7	Springfield .....	115.8
German Valley .....	49.4	Hilton .....	118.5
Hackettstown .....	55.8	Irvington .....	119.7
Port Murray .....	66.	Newark .....	121.9
Port Golden .....	66.		
Washington .....	67.4		



NEW JERSEY A. &amp; M. C. ROUTE FINDERS STOP AT BOONTON RESERVOIR.

## A. C. A. SEALED BONNET CONTEST WILL BE STRENUOUS

SINCE announcing the sealed bonnet contest a few weeks since, Chairman R. L. Morrell, of the Contest Committee of the Automobile Club of America, has wasted no time at the task of designating the conditions under which the event is to be held. June 19 to 22 have been set as the dates, and a glance at the rules of the contest show that it bids fair to prove one of the most strenuous affairs of the kind that have ever been held in this country. The object of the contest, which is open to all regularly listed stock cars of domestic or foreign make, as explained by the committee, is to afford an opportunity of demonstrating the continuous running qualities of the modern stock car, without adjustments, repairs, or replacements of any kind, except tires. The breaking of any of the seals required by Rule VIII. will immediately disqualify a car, and it must be thereupon retired.

The entrance fee is \$50 and the cars will be classified as follows:

Class A—Stock cars complete, without tops, listed at \$3,000 and over.

Class B—Stock cars complete, without tops, listed at over \$1,500 and less than \$3,000.

Class C—Stock cars complete, without tops, listed at \$1,500 and under.

The contest will cover four days, and the distance to be traveled will be approximately 150 miles per day, or a total of 600 miles for cars in all classes except runabouts in Class A, which will be required to cover approximately 175 miles per day, or a total of 700 miles.

Each day's run of 150 miles and 175 miles will start and finish at the clubhouse in New York City. The running time, however, going out and returning shall be taken at Central Bridge only.

The daily runs will be approximately as follows for all classes except runabouts in Class A:

First Day—New York to Poughkeepsie and return.

Second Day—New York to Pawling and return.

Third Day—New York to West Haven and return.

Fourth Day—New York to Bridgeport, Danbury and return.

Runabouts in Class A will follow the same routes, with an additional twenty-five miles each day.

Each competing car shall be equipped with an odometer.

### SEALING OF CARS.

All cars entered in the contest will be required to report to the Contest Committee at the clubhouse on Tuesday, June 18, at 9:00 A. M. (the day preceding the contest), completely equipped for the contest. They will be inspected by the committee, who will assign a number to each car, and affix seals to all operating parts (excepting the receptacles for gasoline, water and lubricants), as follows: The bonnet and all operating parts thereunder, transmission gears, axles, wheels, springs, coil boxes and battery boxes, etc. The cars after being sealed will remain in the custody of the

committee in the club garage, under proper guard, until ready for the start on the following day, Wednesday, June 19, when they will be delivered to the contestants with all seals intact.

Cars having their water or oil receptacles under the bonnet must be provided with a special equipment to enable the filling of such receptacles without raising the bonnet.

Cars having their engine under the body must be equipped with a special covering for the engine, to be provided by the contestant, so that the engine and all working parts may be properly sealed.

Cars not having mud aprons will be obliged to provide same, so that the motor or other devices under the bonnet cannot be reached from below.

No tools except tire tools shall be allowed to be carried in the car, or by any passenger, except those in the tool box, which shall be sealed in the same manner as the bonnet.

### DELIVERY OF CARS.

The cars will be delivered to contestants at 7:30 A. M. on Wednesday, June 19, and the start will be made at 8 o'clock sharp, and proceed to Central Bridge, where the official start will be made, and will also stop here on their return.

Observers will be carried, and no adjustments, repairs or replacements of any kind will be allowed during the period of the entire contest, excepting tires.

Supplies of gasoline, lubricants and water may be carried or taken on without restriction at the contestants' expense, but same must be noted by the observer.

Gasoline and water tanks will be filled by club attendants in the garage.

Any contestant desiring to make tire repairs at the end of a day's run must make them before turning his car over to the committee, and one hour will be allowed for such purposes. Under no circumstances will contestants be allowed to approach the cars after they are placed in the custody of the committee.

### RATE OF SPEED.

The cars will be required to make each day's run from the control at Central Bridge and return as follows:

Class A—At a minimum average rate of 17 miles per hour.

Class B—At a minimum average rate of 15 miles per hour.

Class C—At a minimum average rate of 13 miles per hour.

Runabouts in Class B will be required to make the same schedule as touring cars in Class A, viz.: 17 miles per hour.

Cars violating the legal speed limit will be disqualified.

### ELAPSED TIME LIMIT.

The minimum and maximum elapsed time allowed daily for each class shall be as follows:

	Minimum.	Maximum.
Class A	7 hrs. 45 min.	8 hrs. 15 min.
Class A runabouts	9 hrs. 15 min.	9 hrs. 45 min.
Class B	7 hrs. 45 min.	9 hrs. 20 min.
Class C	7 hrs. 45 min.	10 hrs. 45 min.

To the maximum elapsed time will be added such time as the car is at rest while taking lunch, or supplies of gasoline, oil or water, or on account of tire troubles, traffic blockades or demands of nature, as certified to in detail by the observer. One hour will be allowed for lunch.

The breaking of any seal or the making of any adjustments or replacements will disqualify the car, and it must be withdrawn from the contest.



HOME OF HOMER E. DAVENPORT, THE FAMOUS CARTOONIST, AT MORRIS PLAINS, N. J.—HERE MAY BE SEEN HIS GORGEOUS PHEASANTS.





A SAMPLE OF NEW JERSEY ROADMAKING NEAR SOMERVILLE.



JUDGE JAMES B. DILL GOING AT 20 MILES AN HOUR.

**ELIMINATORY AND FINAL FOR GERMAN RACE.**

BERLIN, May 6.—For several weeks criticism and objections against the crowded nature of the course selected for the German Emperor's Cup race have been prevalent in European automobile circles. With 93 machines on a 73-mile circuit, the machines being only nominally touring cars, capable of 70 miles an hour, and the course abounding in difficult curves, villages and narrow sections, it was easy to see that there was a big element of danger. The race owes its origin to the 'Automobile Club of Germany, but permission to hold it is due to the Emperor himself. Thus, when objections flowed into the headquarters of the national club the committee turned to their versatile chief for a solution. The Emperor visited the course and immediately declared that it was impossible to place 92 machines on such a set of roads.

Two solutions of the difficulty were possible. Either to reduce the maximum number of starters per firm from three to two, or to make the race a two days' event. The latter has been decided upon. On June 13 there will be two series of elimination trials, to select 40 machines to participate in the race for the cup on the following day. Starting at 6 o'clock, 46 machines will be sent away for two rounds of the circuit, a total distance of 146 miles, the first twenty to finish being qualified for the final. At 11 o'clock this race will be finished, and at 1 o'clock the remainder of the competitors, probably about 46 in number, will start their 146 miles run. The fastest twenty machines of this section will join their companions of the morning group for the final race to be decided on the following day. There will thus be not more than 40 machines in the final race to be decided over the Taunus course, for, though it is not very probable, it is still quite possible that twenty machines may fail to qualify in the two preliminary races. Instead of 292 miles, the racers will now have to cover a total distance of 438 miles; the additional distance will add to the value of the race by making the competition more thorough. The Emperor's Cup is open to machines with a cylinder capacity of eight liters, weighing 2,585 pounds.

**NO RACE MEET AT CHICAGO DECORATION DAY.**

CHICAGO, May 14.—The Chicago Motor Club has declared off its Decoration Day meet. Delay in securing the sanction of the A. A. A. is given as the reason by the club officials.

**PHILADELPHIA AUTOISTS ARE VERY BUSY.**

PHILADELPHIA, May 13.—With the Epileptic Hospital Motor Carnival at Belmont Driving Park on May 18, the two-day race-meet of the United States Motor Racing Association at Point Breeze track on May 24-25, a three-day run (May 29-31) to the Wilkes-Barre hill climb, and the Orphans' Day on June 12, local automobilists hope to be kept tolerably busy.

The affair next Saturday, which started quite modestly with an appeal from the Ladies' Aid Committee of the Epileptic Hospital to the Quaker City Motor Club to help them out, has grown far beyond the limits at first set. Fully 150 separate entries will line up in the twenty classes which will appear before the judges. Dealers and private owners are leaving nothing undone to pull down the blue ribbons and loving cups hung up as prizes.

Preparations for the opening race meet of the season at Point Breeze track on the 24th and 25th are proceeding apace. The 24-hour race, which will be started at 4 o'clock Friday afternoon, will necessitate the lighting of the track.

The three-day run to Wilkes-Barre, May 29-31, promises to bring out more than a score of starters, and as there are no restrictions as to controls, it is whispered that there will be something doing in the way of speed.

A sufficient number of assurances have already been received by the committee in charge of the Orphans' Day, on June 12, to warrant the prediction that 2,000 of the parentless little ones will be given a red-letter day's outing.

**DISSATISFACTION WITH ARDENNES RULES.**

PARIS, May 6.—There is general dissatisfaction with the regulations governing the annual race on the Ardennes circuit. This year the old weight limit was abandoned and regulations adopted very similar to those governing the German Emperor's Cup race, namely, eight liters cylinder capacity and minimum weight of 2,585 pounds. Baron de Crawhez, one of the most important figures in the Ardennes circuit since its formation, declares that he will endeavor to obtain a race under the old conditions, and that he is willing to endow it with a sufficient sum to assure its success. Another proposition is that the regulations should be so modified as to allow the participation of machines built for the Grand Prix. It is quite possible that separate races will be held for machines built under these widely varying regulations.



THE CROOKED DEVIL'S ELBOW OF WILKES-BARRE MOUNTAIN.

**SECOND ANNUAL CLIMB OF GIANT'S DESPAIR.**

WILKES-BARRE, PA., May 13.—Arrangements are progressing with great rapidity for the second annual climb up Giant's Despair, Wilkes-Barre Mountain, to be held on Decoration Day, under the auspices of the Wilkes-Barre Automobile Club. The Quaker City Motor Club of Philadelphia has arranged an endurance run, and in consequence two events have been provided exclusively for members of this club. Thirty-two prizes in all will be awarded in the ten events, of which three will consist of sterling silver cups awarded respectively by the Wilkes-Barre Board of Trade, the Wilkes-Barre *Leader*, the Wilkes-Barre *Record*. There will be nine gold medals, ten silver medals, and a like number of bronze medals.

The general committee in charge of the affair consists of C. W. Matheson, George F. Lee, W. E. Steelman, Robert Johnston, Laning Harvey, with President P. A. Meixell, a member of this and all other committees.

Following is the list of events for the big climb as announced by the general committee:

Free for all racing and stripped cars.

Quaker City runabout class (members of Quaker City Motor Club).

Stock cars costing \$1,000 and under.

Stock cars costing \$2,500 and under.

Stock cars costing \$4,000 and under.

Motorcycles, free for all.

Stock touring cars, all prices and horsepower, completely equipped as catalogued, except muffler, top and glass front. Cars entered in this event must carry stock touring body complete, including regular tonneau or rear seats, also fenders, steps, running boards, lamps, horn, mats, etc. The sprockets or ratio of gearing may, however, be changed for this event.

Quaker City touring car class (members of Quaker City Motor Club).

Stock cars costing \$5,500 and under.

Stock cars costing over \$5,000.

The entry fee is \$5 for each vehicle in each event up to the day of closing of entries, May 27. Any entry received after that date will be at double entry fee. Entries are to be made to and blanks can be obtained from President P. A. Meixell, Wilkes-Barre Automobile Club, Wilkes-Barre, Pa.

**THIRTEEN PASSENGER HILL CLIMB RECORD.**

Boston, May 11.—To settle a wager of \$100, Ralph Coburn drove a 20-horsepower two-cylinder Maxwell touring car with a load of thirteen passengers up Corey Hill in Brookline, the steepest grade within ten miles of Boston, and 500 yards in length. A standing start was made, the machine reaching the top of the hill without any difficulty, despite a snow-covered surface. Time for the climb, 3:39.1.

**NEW YORK MOTOR CLUB'S 200-MILE RUN.**

Two hundred miles in a single day is the strenuous performance that has been outlined by the New York Motor Club for its endurance run to be held June 6 next. Not only is it to be the longest one-day contest on record, but the distance must be covered according to a definite schedule, checking stations being established at intervals of about every twenty-five miles. Each car is to carry an observer nominated by a competitor, who will take note of all adjustments and replacements and penalize the car two points for each minute so spent.

Chairman R. H. Johnston of the Endurance Run Committee, in explaining the reason for making the contest of such a length, stated that it was the opinion of the committee, consisting of S. B. Stevens, Jr., Alfred Reeves and A. G. Batchelder, that it would be possible to secure a far greater number of entries from makers and agents who would find time to participate in a single-day event. The mileage, which is the longest scheduled for a single day's run in this country, should prove sufficient to make the test of interest and value generally. The committee in charge of the run is to be enlarged by the appointment of other members, and it will, in turn, nominate representatives in several nearby cities to secure entries from out-of-town drivers, so that the contest is certain to be of more than local interest.

After a long conference on Tuesday, the committee announced that it had decided to hold the run from New York to Albany, by way of Pittsfield, making the total distance slightly over 200 miles. From New York the route passes through Yonkers, Tarrytown, Peekskill and Fishkill to Poughkeepsie. Here the route leaves the Hudson river and goes through Millbrook, Amenia, and Lakeville, entering the Berkshire Hills, passing through Salisbury and Great Barrington to Lenox. From Lenox the route continues to Pittsfield, and then turns eastward through Lebanon and Canaan Four Corners to Chatham. From Chatham the route lies almost due north through Valatie and Schodack Centre, finishing at Albany.

This route offers good roads, and there is enough hilly country to make it a desirable test for an endurance run. Except in the immediate vicinity of New York, much of the route is through open country, where the competing autoists will cause no inconvenience to other users of the highway. If desired, contestants may ship their cars back to New York from Albany on the boat, immediately after the conclusion of the test.

Oliver A. Quayle, president of the New York State Association, has been asked to officiate as the judge at the finish.



NEAR THE SUMMIT OF "GIANT'S DESPAIR"—ANOTHER NAME FOR WILKES-BARRE MOUNTAIN.



## HOW TO EXTEND THE LIFE OF AN AUTOMOBILE

By A. S. ATKINSON.

A MANUFACTURER was showing me his own private car which had been doing service for five years, and to all appearances it looked as good, except a little old-fashioned, as any car on the road. I suggested to him that for one in his business it was unusual to run an old model and not get out the latest, if for no other reason than for the advertising it would give him. He smiled, and then said:

"That's the general opinion of makers, I know. But I heard a man once remark at an exhibition that an automobile is good for only one year, and that manufacturers had to make them so the parts would require renewing every little while to keep up the demand. Now, my machine is a living proof that we make a car which can do good service for five or more years if good care is given to it. When I go about and a friend asks me when I bought my car, I say 'Five years ago.' That surprises them. I take them for a spin and show them that it is in excellent condition. That makes them sit up and think. If a car can be used five years and look and do as well as mine, it must be a pretty good thing. So, you see, I get more advertising from running an old car than a brand new one."

This interview is quoted to show that there is coming a reaction against short-lived cars. A good many will say to-day that it pays better to buy a new machine than to keep the old one more than a year. A good many believe that and act upon it. But when a man puts four or five thousand dollars in an automobile he does not want to cast it aside after a year. Not many can afford that luxury. He may get for a \$4,000 car the second year about \$2,500 to \$3,000, and the third year \$1,800 to \$2,000. That's very little for a first-class, high-grade car, but it is about all the market will afford for it to-day. And every year second-hand cars are growing cheaper. There's bound to be a glut on the market soon, and it will be almost impossible to sell a machine after the second and third year for any reasonable price.

What does it cost to put a car in as good condition after the first year as when purchased? This question can be answered variously, for so much depends upon the care given to it. It is not the cost of repairs, but the attention given to the car as one uses it daily which will determine its age of usefulness. The manufacturer quoted loved his machine. He was formerly a great horseman, and a horse received from his hands just as much loving care as a child would from its mother. When he switched off to autoing he took the same pride and interest in looking after his machine.

### Motors Injured by Careless Chauffeurs.

"Half the motors are injured and half ruined to-day by careless chauffeurs and unskilled machinists," he explained further. "We must reorganize our whole system of employing chauffeurs and training them if we are to keep our machines in good condition. The average chauffeur knows practically nothing about machinery and the care of parts. He can make the car go and steer it properly, and for this little skill we pay him high wages. When we employed a good coachman in former days he had to be something more than a good driver. He had to know everything about a horse and how to treat him when tired, winded or sweaty. A chauffeur should be trained so that he can take apart a car and put it together again. His duties should include oiling, cleaning, and proper attention. When you can get a mechanic for a chauffeur who loves his car you can make it last any number of years."

"The same is true in regard to machinists employed by the public and private garages and repair shops. Most of them are unskilled and so ignorant that they often do more harm than good. When I get hold of a garage who employs a born machinist who does his work thoroughly I stick to that garage and

give orders that no other machinist is to touch my car. Let the garage owners know this, and they will soon bring up a better class of machinists. As things are now run, the attention or lack of attention does more harm to the motors than running them every day."

### Hunting for an Automobile Expert.

The man who hunts for an "automobile expert" is, in fact, up against it in many parts of the country. Even in our cities machinists who understand an automobile as a physician understands a patient is a rare commodity. When you get hold of such a man he is worth keeping. When there is trouble in an automobile the average repair shop or expert machinist will tell you the trouble days or weeks later in the shape of a big bill. Often enough the trouble is some minor fault which an expert should be able to remedy within ten minutes. A proper machinist should be able to look over a car and diagnose the case within a short time, but usually it is necessary to take the machine apart and after much tinkering and experimenting the fault is located. When the trouble is known, it does not take long to repair it. The little things about motors are the aggravating ones. It may be due to a little grease or grit in the wrong place, a loosening of the battery plug, or disarrangement of the switch.

I have seen repair men shake their heads over a "stalled" machine, and say that the motor was injured in some way. Then, after taking the machine apart, and working away half an hour or more, they would discover that the trouble was due to a lost battery plug. How much easier and simpler it would have been in the hands of a real expert.

The way to prolong the life of a motor car is either to have a chauffeur who is an expert automobile machinist or become one yourself. The former is not always obtainable, but any man with ordinary perseverance can study up the subject so that he can tell why his machine won't go. A friend who has run his own machine for the past four years does this so well that when he takes his car to the repair shop he tells exactly what he wants done. He does not trust to the uncertain diagnosis of a stranger. It is a leaky valve, or an obstructed gas jet, or possibly a broken or disarranged switch. Whatever it is, he knows in advance what the trouble is and pays bills rendered accordingly.

### He Takes Utmost Care of His Car.

He takes the utmost care of his \$4,000 car, and expects to get at least six years of usefulness out of it, and then sell it for more than many get for their two-year old cars. After each trip or before the car is taken out for another spin, he looks over every important part of the machinery. He tests screws, nuts and bolts, tries the switch and looks at the battery plugs, and even oils and wipes off parts that show signs of needing it. The compression cups are looked into, and the fuel tank and pipes examined to see if there is any sign of leakage. The wheels and tires are inspected in the same way. He has a regular routine for examination, and so accustomed is he to the work that it takes less than five minutes to go over it. Every car needs just such inspection. It is what every locomotive gets from expert examiners after every long run. By tightening up a nut or screw, here and there, wiping off dirt and grease and oiling where needed, the wear and tear on the ordinary car must be reduced fully twenty per cent. This is the sort of work that one pays for at the garage, but how few really get it? Usually the car is cleaned outside, oil cups filled, and sufficient fuel put in the tank for another trip. There the work ends. There is no real system of inspection and testing of parts. Hence breakdowns and accidents which shorten the life of the car.

A good plan for the owner of a car who expects to look after it much as he would look after the health of a blooded horse is to secure a chart of the different parts of the machinery and then make a careful study of it. Usually a chart can be obtained from any manufacturer, or if one is not published of the particular car used the mechanical department of the factory will supply a purchaser with drawings at a nominal cost. Now this chart, with the help of a practical machinist, should be made as familiar to the owner as possible. He should ask questions, and find out what everything is for. Nothing should be accepted until a reason for it is given. Thorough familiarity with such a chart will go a long way toward diagnosing the ordinary troubles which affect the machinery. With the chart in mind it is easy then to study the car in a more comprehensive way. Every part of the machinery can be located, and every nut and bolt can be examined without difficulty.

#### Life of Machinery Dependent Upon Care.

A few minutes spent each day for a month in studying such a chart or drawings, and then finding them out in the car, will prove of more value than a course in an automobile school. The parts which suffer the most from friction can always be kept well lubricated, and the weak parts which are apt to get clogged with grease and dirt can be easily kept clean and in free running condition. One does not realize how much this means in prolonging the life of any mechanism. There is practically little wear on an engine or machinery that is always kept in first-class condition. A motor that wears out in parts in two years can easily be made to do good duty for five or even ten years. If it does not do this under good care it is the fault of the makers, but in nine cases out of ten it is due to carelessness on the part of the owner.

Any piece of machinery is dependent for its life of usefulness upon the care given to it. Go in any machine shop and note the cleanliness of the place. Every part of the machinery shines with oil and polishing. There is hardly a speck of dirt anywhere. The car that is to live its years of usefulness should be just as clean when it leaves the garage every day—not simply clean in the outside appearance, but in every part of its mechanism.

#### Try to Make Their Cars Fool-Proof.

Manufacturers, realizing that novices will use and abuse the cars which they turn out, try to make as nearly a fool-proof product as they can; but it is impossible to protect every part so that it cannot be injured. Manufacturers deplore the relatively short life of cars as much as their owners. It is a good advertisement for any firm to show that their cars are continuously in use many years. The conclusion is false that makers are inclined to turn out cars which will depreciate rapidly so owners will be forced to purchase new ones within a year or two. It is more to the point that if they could demonstrate the long usefulness of their cars they would sell many more to those who do not feel they can afford to purchase a new car every second or third year. It is the heavy repair cost and the rapid depreciation which keeps many from investing in automobiles.

If the same care is given to a motor car as bestowed upon a blooded trotter or pacer, it is safe to say that it would last twice as long as the average car is reputed to last. A change for the better can only be hoped for when owners will seriously take up the problem of studying the parts of the machinery and how best to keep them in good condition.

#### Owner Should Be Able to Diagnose.

An owner should at least be able to diagnose the troubles of his car even if he does not make the repairs. A good many do not care to do the dirty work, but intelligent oversight of those who do this work is essential. The chauffeur and repair man can soon tell whether they can impose upon the owner. Once convince them that you know something about the mechanism of the car, and how it should be kept, and there will be less

costly impositions. There are tricks of all trades, and in none is there more than in automobile repairing and keeping. Let owners help to limit these abuses and tricks by a more systematic acquaintance with the machinery of their cars. Already this has been done in many individual cases. Some of the wealthiest owners of high-priced cars are not only excellent drivers, but they thoroughly understand the mechanism of their machines and could in an emergency make repairs and take their machines apart and put them together again. Any road troubles can be diagnosed by them quicker and more accurately than by nine-tenths of the so-called machinists and chauffeurs.

#### A LARGE DOUBLE-ACTING, TWO-CYCLE MOTOR.

Probably no more severe test of the steady torque of a gas engine could be suggested than the driving of a cotton mill. For such use internal combustion engines have hitherto not been looked upon with favor; but a twin engine of the Koerting double-acting two-cycle type is now approaching completion by Mather & Platt, Ltd., Manchester, and is intended for the above purpose, says *The Engineer*. It has cylinders 20 inches diameter and 32 1-2 inches stroke, and is capable of developing about 700 horsepower at 135 revolutions per minute with producer gas. A large flywheel is provided weighing 18 tons, which is provided with grooves for thirteen ropes. The crankshaft has cranks set at right angles, and is of the built-up type, with cast steel webs. Although embodying the Koerting principle, there are several modifications in the design which are worthy of notice. The valve gear has been improved and simplified, and each pair of induction valves is operated by means of a long shaft from one eccentric on the crankshaft. The working of the valves can be regulated by altering the throw of the eccentrics and by adjusting the length of the operating rods. The bed plate is very substantial, and on its upper surfaces is provided with slides for the crossheads. The pumps for charging the engine cylinders have been improved. It may be here recalled that in the Koerting principle each side of the piston receives an impulse at every alternate stroke, that is, there are two impulses at each revolution. The regulation of the engine is effected by altering the quantity of the mixture of gas and air so that the charge can be proportioned in accordance with the work to be done. The gases are ignited at two independent points in the combustion chamber at each end of the cylinder by magneto apparatus operated pneumatically. For cooling purposes water is circulated through the crossheads, piston rods and pistons.

#### SOME FOREIGN COMMERCIAL CAR STATISTICS.

The number of commercial vehicles staged at the Paris show was 50. Of these, 43 had gasoline motors, 5 were steamers and 2 were electric or mixed. The percentage of the different types of engines with one to four cylinders was:

	Per Cent.
Motors with one cylinder.....	.02
Motors with two cylinders.....	.23
Motors with three cylinders.....	.02
Motors with four cylinders.....	.73

On 72 per cent. of the machines final drive was by double side chains; 20 per cent. had longitudinal shaft drive; De Dion had double shaft, one machine had belt drive and another had triple chains.

The average load carried was 6,160 pounds. Tabulating them, the loads carried were:

	Per Cent.
One ton .....	22
Two tons .....	25
Three tons .....	27
Four tons .....	11
Five tons .....	15

Three constructors presented chassis with three axles; they were Brillié, De Dietrich and Janvier. On demonstration outside the exhibition were the Borderel six-wheel chassis and the Renard train, also with six wheels.



## HORSEPOWER IN RELATION TO MOTOR DIMENSIONS\*

By F. W. LANCHESTER.

It frequently happens that there are unnatural restrictions to the size of fly-wheel permissible. Such restrictions usually take the form of a diametrical limit, which cannot be exceeded. When there is no such artificial restriction, the limiting factor is the safe stress of the material of which the rim is composed, due to centrifugal force, the rim being in tension. It is well known that this results in there being a *safe limiting velocity*, which depends solely on the material employed.

When the limiting condition is that of safe velocity, there being no artificial restriction, it is evident that, for a given percentage speed variation, the weight of the wheel will require to be directly proportional to the cylinder volume, that is, *varies as D<sup>3</sup>S*.

When the size of the wheel is settled by a diametrical limit, the problem becomes more complex and the expression is derived as follows:

$$\begin{array}{l} \text{Rim velocity varies as } R; \text{ that is, as } \frac{1}{\sqrt{S}}; \\ \text{therefore, energy per unit mass varies } \frac{1}{S}; \end{array}$$

or, *weight per unit energy*  $\propto S$ .

But, *energy per explosion*  $\propto D^2 S$ ;  
or, *weight of rim*  $\propto D^3 S^2$ .

Thus, the form of expression for minimum value differs, and the resulting D/S proportions for least weight will be different according to the circumstances. *When there is a diametrical limit on the fly-wheel, the least weight proportions will result in a shorter stroke than when there is no such limit.*

## Proportions as Affected by Number of Cylinders.

In the foregoing investigation it has been supposed that the number of cylinders is a matter settled in advance. It has been shown that on the basis of *geometrical similarity* the smaller the units the less the weight, so that any attempt to solve the problem of least weight on the broad basis would give the number of cylinders as infinite, or in practice, the greatest number that the circumstances allow.

Under actual conditions, a limit is reached in the number of cylinders that can be employed, even from the point of view of weight saving alone. Not only do certain organs, such as those of ignition, constitute a *constant per cylinder* that sooner or later neutralizes any gain that would otherwise accrue; but the available methods of manufacture are not perfectly elastic, and it is not commercially possible otherwise to maintain the condition of *similarity*; the minimum thickness, for example, that metals will flow in casting, is, in some cases, a limiting factor.

By an elaboration of method it would doubtless be possible to take account of all these incidental factors; but the complication would hardly be justified. In the absence of any complete solution, certain general conclusions may be drawn.

The greater the number of cylinders for any given h.p., the less energy storage required, and therefore, the less fly-wheel weight.

Now we have either:

- (a) No restriction as to diameter and fly-wheel weight  $\propto D^3 S$ , or for h.p. constant,  $\propto S^{1/2}$ .
- (b) With diametrical restriction, weight  $\propto D^3 S^2$ , or for h.p. constant  $\propto S^{3/4}$ .

In either case, an increase in the number of cylinders results in a diminution in the importance of a quantity tending to shorten the relative stroke, consequently the proportions of least weight will vary in some degree with the number of cylinders.

\*Paper read before The Institution of Automobile Engineers, London. Concluded from page 780, issue of May 9.

ders, and the greater the number of cylinders the longer will the stroke become in proportion to the diameter.

The increase in the relative length of stroke will be greater when there is a restriction as to diameter than when there is no restriction.

## Something About the Rating Rule.

One of the collateral objects of the present paper, is the investigation of the *rating rule*, a somewhat vexed question amongst those concerned with the practical trial of motor vehicles and the organizing of competitions.

The difficulty of framing a *rating rule* is not a matter peculiar to the automobile; it is a problem of no less difficulty in the yachting world, and the experience of yacht rating is instructive and, though not immediately to the point, there is much that is analogous in the two dissimilar sets of conditions.

In the early days of yacht racing, when boats were built for actual utility, for cruising or pleasure purposes, the framing of a rating rule, to appropriately handicap the larger craft, presented no difficulty. The similarity of purpose resulted in a general similarity of form, and almost any measurement, properly employed, would serve as a basis. When, however, owners commenced to have boats built especially for racing, at the expense of other sea-going qualities, designers were not slow to take advantage of any weak points in the system of measurement, and the shape of the hull became fearfully and wonderfully *distorted*, and every new rating rule that is invented results in some *new variety of distortion*. The same conditions obtain with certain variations in the case of the automobile. It is the manufacturer that wants to win races and competitions instead of the owner, and it is the manufacturer who tries to cheat the rating rule; the conditions are otherwise very similar.

Now, it is highly undesirable that the design of the car should be pulled about by changing fashions in the way of rating rules, and it, therefore, behooves us as automobile engineers and designers, to thresh this matter out once and for all; it is not a matter in which perfection is attainable; any rating rule whatsoever is an *addition to the conditions of the problem of automobile design*, and as such must result in *distortion*; all that we can secure by intelligent forethought is that the rating rule is of such a nature that the *distortion* is of a beneficial kind, or at least that it shall be harmless.

The question of the effect of a rating rule in producing *distortion* in design has already been touched upon, and the possibility of undesirable kinds of distortion has been pointed out. The employment of the cylinder measurements as a basis tends to make the designer give very free ingress and egress to the mixture and exhaust gases, a most desirable feature as tending to a reduction of petrol consumption.

It has been proved on the hypothesis assumed (*i.e.*, that the h.p. depends upon the variables  $l$ ,  $\delta$  and  $\phi$ ) that:—

- (1) The h.p. rating rule must obey the  $L^2$  law—that is to say must be based on a quantity of the dimensions =  $L^2$ .
- (2) That if based upon the two linear quantities, diameter  $D$  and stroke  $S$ , it must be of the form  $D^n \cdot S^{2-n}$ , where the appropriate value of  $n$  deduced from mechanical consideration is from 1.5 to about 1.6.

Departures from (1) lead to *distortion* in the direction of an increase or decrease, as the case may be, in the number of cylinders; where the index is in excess of 2 it pays to increase the number of cylinders to the highest possible limit, and *vice versa*.

Departures from condition (2) lead to a distortion in the proportions of bore and stroke. When the value of  $n$  is increased, it pays to build long-stroke engines; when the value of  $n$  is

decreased, the short-stroke engine has the advantage. So long as the value of  $n$  is chosen between the limits given, it is doubtful whether a designer could obtain any material advantage by adopting extreme proportions.

Taking everything into account, the simpler form of expression appears the more desirable; i.e.:-

$$\text{H.P. varies as } D\sqrt{D} \cdot \sqrt{S} \text{ or } \sqrt{D^3 \cdot S}.$$

#### The Rating Rule and the H.P. Constant.

We have so far discussed the *form* of the expression on which the maximum power output depends; we have now to discuss the question of the *constant* C, which will be appropriate to the conditions, so that:

$$\text{H.P.} = C\sqrt{D^3 \cdot S}.$$

The expression, so far as we have gone, is independent of the *cycle* of the engine; in fact, it might apply to a steam or other fluid pressure engine, the constant C being adjusted to suit.

In case of the Otto cycle, at present almost universal, where D and S are given in inches, C may be taken as '4, giving an ordinary maximum b.h.p. value. For other forms of internal combustion engine appropriate values of C may be obtained, based upon the cylinder pressures ordinarily attained in the particular cycle employed and the frequency of the impulses.

I do not think that it is expedient to attempt to run steam cars, and those propelled by the internal combustion engine, in one class, especially in hill-climbing contests, and though the proposed rating rule may be applied to the steam car, the constant being made proportional to the boiler pressure, such rating should be only employed for the purpose of comparison with other steam cars.

The *constant* should be looked upon as a quantity liable to alteration to meet new conditions, such as might arise from developments, either in design or in the *cycle*. It is evident that, even if no departure be made from the Otto cycle, it may be found possible to greatly enhance the power obtainable from a given size or *rating* of cylinder by some artificial means, such as that proposed by Daimler in one of his very early patents; i.e., super-compression by surfeiting the cylinder at the end of the suction stroke. Under these conditions, some check may have to be applied by the responsible authorities, which will take the form of a *schedule* or *tariff* prescribing appropriate constants.

It is well known that certain compact forms of combustion space tend to higher mean pressures and greater economy, and without doubt such forms will give an advantage to competitors who adopt them. So long as no corresponding disadvantage exists, such variations should be encouraged rather than otherwise, for that which tends towards higher mean pressure for a given composition of charge also tends to higher thermal efficiency. If, however, it should be found, by *experience*, that in the race for high pressures, some undesirable forms of valve gear come into vogue, such as might be found to possess grave disadvantages in the hands of the public, it might be necessary to adopt special legislation, by *scheduling* a *special value* of constant.

The above is given as an example of the manner in which a rating rule of *correct form* may be adapted to meet all contingencies; it is not a very likely example, but one that illustrates the point. If the rating rule is not of the *correct form*, no reasonable alteration of the constant will make it serve.

#### Some Unaccounted Factors.

In equation (7),  $\text{H.P.} \propto \sigma \phi^{\frac{1}{2}} P$ , it has been pointed out that the symbol  $\sigma$  relates specifically to the stress or compression in the working fluid, and if this vary independently as a *function* of  $l$ , we may find an infraction of the  $L^3$  law.

Such an infraction does not constitute a violation of the dimensional theory, for in supposing  $\sigma$  to become a function of

M

$l$ , independently of its *dimensions*, as stress ———, we tacitly in-

$L.T^2$

voke some further physical quantity or quantities, such, perhaps, as *viscosity*, not represented in our dimensional equation.

Dugald Clerk has shown that a difference in linear size of about  $2\frac{1}{2} : 1$  gives a difference of mean pressure of about 9 per cent., or we have  $\sigma \propto l^{-1}$  approximately. There is some doubt whether this is always the case, or whether in the particular series of experiments some inexactitude in the conditions of similarity may have had some influence; in any case, it is generally admitted that the larger the cylinder the higher the pressure obtainable for mixture of given composition, and if we accept the above figures and embody  $\sigma$  as a function of  $l$  in equation (7) we have:

$\text{H.P.} \propto \phi^{\frac{1}{2}} P^{\frac{1}{2}}$  an incomplete expression, giving the extent of the probable departure from the  $L^3$  law.

If we modify expression (2) to correspond, we have:

$$\text{H.P.} \propto D^n S^{2.1-n}$$

In view of the doubt that at present exists as to the extent of the influence of size of cylinder on mean pressure, and the fact that on the most reliable information at present available, the magnitude of this influence is small, it is dubious whether anything material is gained by introducing this factor into the rating expression. It would seem safer at least for the time being to accept the  $L^3$  law implicitly.

Another unaccounted factor is that introduced from considerations of *mechanical efficiency*. In general, we are accustomed to expect the mechanical efficiency of a large engine to be better than that of one of small size; it is doubtful whether this is well founded. It is quite probable that the higher efficiency of a large engine is an actual fact; but that this is in part due to the greater care in design and construction that is bestowed on works of importance. On the other hand, there is every probability of a real effect of sensible magnitude, owing to the viscosity of the lubricant, and that of the working fluid. This, for engines, *geometrically similar*, will be detrimental to the efficiency of the engine of smaller size, and for engines of different D/S ratio, it will be more detrimental to the efficiency of the engine of relatively short stroke.

Under all circumstances, the short-stroke engine is at some slight disadvantage on the score of mechanical efficiency, for its main crank bearings and connecting rod heads consume about the same energy per revolution for a given revolution speed as a longer-stroke engine of the same cylinder diameter. This is probably the reason why the stroke is proportionately so much longer in the gas-engine, where economy is the all-important factor, and weight is of secondary importance.

#### CHARLES SCHMIDT ON HIS TRIP ABROAD.

Charles Schmidt, the engineer of the Peerless Motor Car Company, who has just returned from abroad, says:

"I did not have time to visit any of the large factories, but have reserved such investigations for a visit which I shall make later, shortly before show time. From general observations, however, I think I am safe in saying that there will not be as radical a line of novelties in next year's French product as has been the case heretofore. There, as here, automobiles are becoming standard and there is less and less inclination shown along experimental lines.

"The most interesting situation in Paris is the taximeter cab proposition. It is altogether likely (in the opinion of nearly everyone with whom I talked) that gasoline cabs will do away entirely with the horse-drawn cab in Paris inside of two years. I think we can expect a similar condition of affairs in this country. This will have a good deal to do with the general trade, particularly in closed carriages, and I think we can look for a movement of similar character in all the large American cities."

Mr. Schmidt was asked if he was ready to make public any of his plans for next year's Peerless model, and he replied that there was very little to be said at this time. He stated that there would be no radical departures from this year's type, which has proved to be thoroughly satisfactory to him.



## TYPES OF AUTOMOBILE TRANSMISSIONS\*

By E. H. BELDEN.

WE will now take up the following types of gear sets: electric, hydraulic, planetary, friction, individual clutch, sliding-gear progressive type, sliding-gear selective type, Belden.

Much can be said both in favor of and against many of the above types, but I will only refer to the more important points.

While it is very important to design a "gear set" to operate perfectly, it is equally important that it shall be designed to suit the whole train of transmission. In other words, no matter how efficient a "gear set" may be, little is gained if it is installed in a position that will lessen the efficiency of the whole

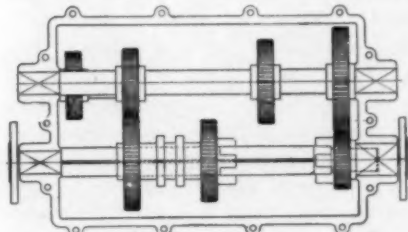


FIG. 6.—One type sliding gear transmission.

transmission of motion between the motor and rear wheels.

**Electric.**—Utilizing the power of the combustion motor to generate the electric current which was converted into mechanical power through the medium of an electric motor has been one that has appealed to investigators, and many systems have been devised, the majority of them involving the use of the storage battery, while the location of the motor is varied, being placed at the wheels in some cases and directly behind the generator in others, a mechanical connection being employed in driving on high speed in the latter case.

In other words, the flywheel of the ordinary combustion motor has been displaced by the generator, which is direct connected to the crankshaft of the motor. In other respects the motor is of the standard four-cylinder type. Immediately behind the generator an electric motor is placed, though there is no mechanical connection between the two on any but the high speed, when the crankshaft of the motor and propeller shaft terminating at the live rear axle become solidly coupled and both the dynamo and motor run dead. The low speeds are used in starting, the motor being capable of heavy overloads and when up to speed a clutch is employed to couple the motor and propeller shafts, and the car runs exactly the same as when equipped with the usual change speed gear. This system is only in an experimental state, so that little can be said in its favor. If the weight, cost of construction and maintenance can be kept low enough to make it compare with the ordinary gear set, it will be a transmission that will meet with much favor.

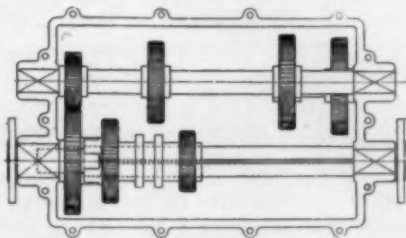


FIG. 7.—Another sliding gear transmission.

**Hydraulic.**—In a transmission recently produced there is attached to the motor flywheel a rotary pump capable of pumping oil at a pressure of 2 1-2 tons per square inch. The oil flows under pressure through a tube to the live rear axle, on which is mounted another rotary pump, which is driven by oil and acts as a turbine, turning the driving wheels of the car. Dividing the turbine into halves does away with the differential, variation of relative speed of the driving wheels being balanced by the oil following the path of least resistance. The oil re-

turns to the first pump. The speed of the car is controlled by allowing more or less oil under pressure to reach the turbine. Reversing the turbine reverses the motion of the car. Shutting the cock controlling the "power" oil and also that controlling the "exhaust" oil, to imprison the oil in the "inlet and exhaust" pipes, stopping the revolving of the turbine vanes, constitutes the brake.

**Planetary.**—The planetary gear set in light cars with comparative high-power motors, where only two speeds forward and reverse are necessary, has always been recognized as the ideal change-gear system. It consists of groups of gears carried on the adjoining end of divided shafts and on a floating plate, the gears being in mesh all the time. It is very efficient on high speed when the entire gear-set is revolving with the motor shaft as one piece. The annoyance of much noise and the necessity of a very low ratio on first speed and reverse (on account of inefficiency) has been put up with by many, because of its low cost of construction, ease of operation and efficiency on direct drive.

Three-speed planetary gear-sets have been attempted, but with very unsatisfactory results, else they would be in general use to-day. When either the reverse, the low or intermediate trains of gears are in service, the gearing on the other two speeds is in action, consequently offsetting the advantage of the intermediate speed.

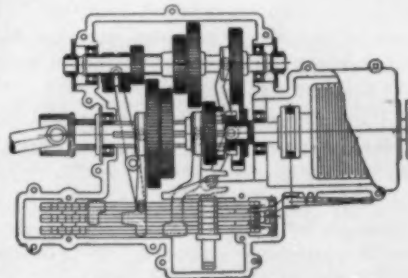


FIG. 8.—Selective type of gear set.

**Friction.**—This type consists essentially of driving and driven friction discs. The edge of the driven disc rolls on the face of the driving disc and has a movement crosswise. The nearer it moves to the center, the slower it will rotate. When moved across the central point the direction of rotation will be reversed. A considerable number of speeds can be obtained by this method. Theoretically it is the ideal type of transmission. Commercially nothing can be said in its favor. Much money has been spent in endeavoring to perfect this system to such a degree that it would be a commercial success. The mere fact that it is not in general use is sufficient evidence that it cannot be worked economically in connection with the combustion motor. A very narrow face on the driven disc is necessary to minimize the wiping friction of the driving disc as much as possible, which makes the point of contact between the two friction discs limited to such an extent that there is a slippage at the time of each explosion in the cylinder, causing enormous loss of power, because of a limited amount of expansion in this type of motor. This one objection is sufficient to make the friction drive anything but a commercial article. There is, however, a transmission, known as gearless, that is worthy of mention, because of its being direct on high speed.

**Individual Clutch.**—This gear-set consists of two or more parallel shafts, on which are mounted gears of different ratios similar to the ordinary sliding "gear-set." The gears are always in mesh and always in motion. Each pair of gears is provided with a separate clutch. Much can be said in favor of this type of "gear-set" because of its ease of operation. The change of ratio and direction is obtained by disengaging one clutch and engaging another, without danger of stripping the gears. It has, however, many drawbacks. The clutches are necessarily small

\*Paper read before the Engineers' Society of Western Pennsylvania. Continued from page 782, issue of May 9.

and require very close adjustment. If they are adjusted close enough to hold without slipping, they become heated and work against each other when expanded, hence the inefficiency, necessity of frequent adjustments and complication of parts, have been the principal causes of its unpopularity.

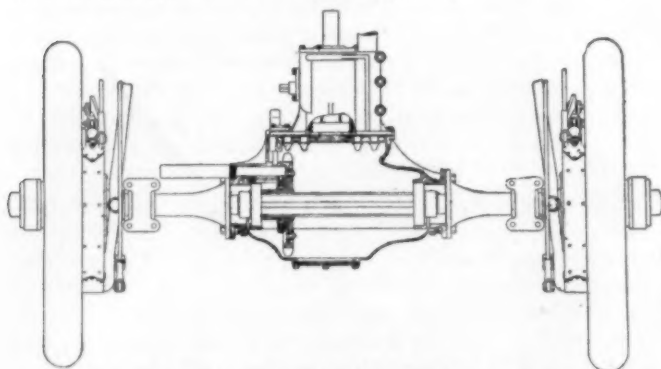


FIG. 9.—Simple type of Belden gear-set, and rear axle.

**Sliding Gear.**—In the sliding gear transmission there are two types, the progressive, shown in Figs. 6, 7, and the selective, shown in Fig. 8. There are many subdivisions of these types, but the broad features are the same in all.

They are constructed with two or more parallel shafts, each carrying gears of different diameters. The gears on one shaft can be slid along, into and out of mesh with the gears of the other shaft, thus forming different combinations as the gears are brought together.

The progressive type has the advantage of simplicity and the disadvantage of having to slide through one gear to get to the other. While the selective type is more complicated, the ratio and direction of motion can be changed without passing through other gears. The trend of the trade is now decidedly for this more complicated type to avoid as much gear-stripping as possible.

In my opinion a four-speed transmission is not necessary as far as the control of the car is concerned. It does, however, minimize the dangers of stripping when the sliding gear-set is used. In other words, it requires one more operation to go from low to high speed, which, of course, is easier on the gears, i. e., the grinding on the edge of the teeth is divided among four gears instead of three.

In Fig. 7 is shown another progressive type with the gears arranged so that the countershaft rotates slower than the motor shaft.

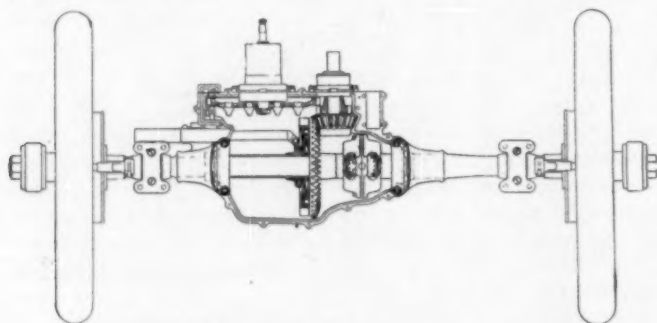


FIG. 10.—Belden standard 60-horsepower rear axle.

In Fig. 8 is shown a selective type of gear set, with an automatic attachment to throw the countershaft out of action when running on high speed.

I know of no better way to illustrate the inconsistency of the "so-called" good designing of automobiles than to call particular attention to the above Figs. 6, 7, 8.

**Belden.**—Fig. 9 shows simple type of Belden gear-set, and rear axle. This axle was used on three of the 110-horsepower

Vanderbilt Cup racing cars. The standard gear-sets of the 24-horsepower type were used. The housing was cast aluminum without truss rods or braces of any kind. They stood up through the race and all the testing out, without accident, or the slightest adjustment. They operated without the slightest noise at a speed of 100 miles per hour and were shifted from one speed to another without releasing the clutch or the aid of any interlocking device.

In Fig. 10 is shown the Belden standard 60-horsepower rear axle, three speeds forward and reverse. Instead of the assortment of gears, such as adorn most automobiles, the Belden system furnishes a simplified apparatus consisting of two gears in the rear axle and is controlled by the movement of one lever at the side of the operator. It is a positive drive direct on all speeds, and when installed in a car of the type shown in Figs. 3-5 delivers 98 per cent. of the power of the motor to the rear wheels, this result being obtained by the rolling contact between the two gears, which form the principal part of the transmission, and by the absence of angularity of the propeller shaft and the multiplied power through the bevel gears. The Belden gear differs from other gears inasmuch as it has a rolling contact with teeth inversely and obversely curved. It is noiseless and operates without friction. It has the advantages of the friction type without the loss of power by slippage, as it is a positive gear-drive. It has all the advantages of the planetary system and none of its disadvantages, as there are no gears in operation on high speed and is direct drive on the other speeds. It also has the advantages of the selective type of transmission and none of its disadvantages, i. e., it is shifted from one ratio to another without passing through gears and does not possess its complications, and it has the advantages of the hydraulic and electric transmissions because of its being noiseless.

#### NEWSY ADVICE ON CLEANING CYLINDERS.

President J. D. Maxwell of the Maxwell Briscoe Motor Company gives the following advice on the importance of keeping the cylinders of the gasoline motor clean:

Few people realize the many complications that arise if the interior of a cylinder, particularly the combustion chamber and piston head, are not kept free from carbon deposits. The intense heat developed by the rapid explosions burns up the cylinder oil, which forms as a hard deposit in the combustion chamber.

The effect of this is to cause the motor to pound and often to fire from self-ignition. When this condition exists the cylinders should be flushed out with kerosene, as this frees the piston rings and allows them to spring tightly against the cylinder, producing a gas-tight joint, besides softening the carbon deposits so that the cylinder may be easily scraped out. If every autoist would take the trouble to flush his motor with kerosene at least once a week, he would do more to keep his machine in perfect condition than perhaps in any other way.

#### "BORROWING" AN AUTO TO BE MISDEMEANOR.

DETROIT, MICH., May 13.—The fate in store for the bill now before the Michigan legislature making the appropriation of an automobile belonging to another a misdemeanor is being watched with interest by automobilists, particularly in Detroit, where the practice has become so prevalent as to furnish a constant menace. Under present conditions there is no way of bringing an offender to time, owing to inability to prove criminal intent. The bill now pending makes the offense a misdemeanor, punishable upon conviction with a fine of not to exceed \$100 or imprisonment in the county jail for not to exceed ninety days, or both.

Herr Gustav Braunbeck, publisher of the *Allgemeine Automobil Zeitung*, has been sentenced to a fortnight's imprisonment for insulting a gendarme of Kehl, in Baden, a spot noted for the harsh manner in which autoists are treated. He has appealed against the verdict, but it is doubtful whether he will escape, although the case was originally heard at Kehl.



## LETTERS INTERESTING AND INSTRUCTIVE

### Data Wanted for a Gasoline Traction Engine.

Editor THE AUTOMOBILE:

[742.]—I am a subscriber of "The Automobile" and am building a gasoline traction engine. I would like to have you send me, if possible, the detail dimensions of the cylinder and valves, the cams and crankshaft, of a representative 1907 model 60-horsepower automobile engine, or a 30-horsepower light four-cylinder motor boat engine of a good make.  
J. M. JOHNSON.  
San Francisco, Cal.

The dimensions of a 60-horsepower automobile motor of 1907 make are about as follows: Bore, 5 3/8 inch; stroke, 5 7/8 inch; compression, 70 pounds (approximate) above atmospheric, or 84.7 absolute; speed, 1,000 to 1,200 normal; valve diameters, 2 1/4 inches, same in case of both inlet and exhaust; valve lift, 5/16 inch, this also being the same for both valves; crankshaft, 1 1/4 inches diameter. It will be noticed that the valve dimensions and lift are quite a departure from former standards of design which favored an inlet valve one-fourth the cylinder diameter and an exhaust valve one-third the latter, while the theoretical full lift was gained by making it one-fourth the valve diameter. The advantage of interchangeability was obtained by making both the same size, and the necessity of very rapidly charging and discharging the cylinder brought about the great increase in valve sizes with a correspondingly decreased lift, which lessens hammering and prolongs the life of the valve.

Generally speaking, dimensions have not changed to the same extent in the case of the marine motor as with the automobile motor, although, as a matter of fact, many of the present-day marine motors are nothing more or less than automobile motors placed in launches. A good marine motor rated at 35 horsepower has a 5-inch bore and a 5 1/2-inch stroke and runs at about 600 to 800 r. p. m. at normal speed, the compression probably being 50 to 60 pounds per square inch, while the valve diameters and lift follow the standards already referred to. In each case the motor is the usual four-cycle, four-cylinder vertical type. These dimensions are not to be considered as final for motors of either type of the powers mentioned, as it is a matter of common knowledge that designers vary considerably not alone as to the dimensions of engines rated the same, but even more so as the rating of engines with the same dimensions, but the foregoing may be taken as representative of good practice in both cases. We have no data at hand as to the dimensions of the cams used on either type.

### The Cross Section of Tire Interiors.

Editor THE AUTOMOBILE:

[743.]—Do pneumatic tires with other than circular air chambers maintain their molded shape when inflated and running, or do they deform into a true circular shape as a result of the pressure? I am a user of a car, and, in conversation with a tire man the other day, I was assured most absolutely that the tires he handled would retain their regular shape regardless of inflation. The tires in question are circular in cross section up to about three-quarters of their height from the rim, at which point the air chamber follows a chord straight across the circle. I claim that such a construction as this, because of the tendency of a flexible vessel to become cylindrical under pressure, will, when inflated, distort until the cross section of the air chamber is approximately circular. Is this so or not?  
PAUL W. MORRIS.

Baton Rouge, La.

You are right. The tendency is to assume a circular form as you say. Of course, with a very much thickened tread or wall, the tendency to distort is resisted in a degree by a certain inflexibility of the envelope, but the pressures employed for inflation generally are high enough to overcome most of such resistance. It must be understood that no objectionable condition necessarily results from the distortion that may occur. In fact, some tire makers count on this effect for raising the center of the tread surfaces when in use.

### How Small a Radius Can a Large Car Turn In?

Editor THE AUTOMOBILE:

[744.]—What is the diameter of a circle requisite to enable a large touring car to turn properly at a front house entrance? In other words, what would be considered a rather short turn, and what a liberal one? A reply through your columns in the near future will be appreciated.  
JAMES H. BOWDITCH.  
Boston, Mass.

Steering radius differs more or less in large cars owing to the amount of play given, the steering wheels being greater in some than others by narrowing the frame in front, but it will be found that the average large touring car, by which is intended one having a wheelbase of 110 inches or over, cannot make a complete turn round a circle of much less than 80 feet in diameter. That is, it can readily be made to follow the arc of a 40-foot radius, and an automobile steers so easily that no trouble would be encountered in negotiating such a turn at the speed at which a house would be approached. A liberal allowance to make an easy sweeping turn would be an arc of 75 to 100-foot radius.

### The "Fat" Spark and Ignition Timing.

Editor THE AUTOMOBILE:

[745.]—If it is not too much of a transgression on your valuable space, I would like to have you explain for me, in a simple manner if possible, the effect of a strong spark upon the timing and the power of a motor. I have a large touring car, fitted with a complete double ignition equipment—both jump spark and make-and-break. When the engine is running on one system alone, under a heavy load, as in climbing a steep hill, switching on the reserve system (so that both are working together) produces a very perceptible increase in the power output, so that the car picks up considerably. This does not seem to be due to earlier or later occurrence of the ignition in one of the systems, for it appears to hold good irrespective of which way the change is made. That is to say, if the engine has been running on the jump-spark system, switching on the make-and-break system in addition increases its power, while if it has been running on the make-and-break system, switching on the jump-spark, without cutting the other off, has a similar effect. What would you say is the cause of these rather contradictory conditions? The answer, I am sure, will be interesting to many of your readers besides myself.  
Evansville, Ind.

RALPH WALKER.

Your questions tread so closely along the border line between what is known and what is not known about the internal phenomena of the gas engine, that it is impossible to give you the satisfactory explanations you seek. Some of our readers may supply the correct theory, or, at least, a few plausible ones, so we shall be pleased to extend the privileges of these columns to all who wish to discuss this interesting subject. For a number of years it has been the consensus of opinion, with the most highly regarded authorities, that a "fat" spark in some way produces quicker and completer ignition than is secured with a smaller spark. But recently, the belief is gaining that the supposed advantages of the fat spark are advantages properly attributable to earlier ignition, which, like the hot spark, is also a manifestation of powerful current. For example, the mechanical and electrical lags that exist in all of the commoner jump-spark ignition systems occasion a very measurable delay between the moment of commutator contact and the moment of actual spark occurrence. This condition, in turn, produces delayed ignition at high speeds and the hammering of advanced ignition at low speeds, with the result of reducing the power materially in the former case. To an extent, the more powerful current that happens to produce the fat spark also reduces the magnitude of the mechanical and electrical lags, and thus the improved result may be readily credited to a wrong source. From a purely theoretical reasoning, it seems impossible that there should be any advantage in the hot spark, provided sufficient heat be supplied to produce ignition. Assume, for instance, a hot spark as large as a quarter of an inch in diameter (an improbable size),

and compare it with a *hot* spark of smallest possible size—call it infinitely small, for convenience in reasoning. Then the distance from the surface of the small spark to the surface of the large spark—they both being produced at the same point—will be one-eighth of an inch. And, since the flame obviously need travel only this distance in the mixture from the point of ignition with the small spark to produce a ball of flame as large as the large spark, it follows that the conditions with the two are the same at an interval apart equal only to the time required for the flame to be propagated one-eighth of an inch. This time, with the probable usual rate of flame propagation of about 3,400 feet a second, is something like 1-27200 second—altogether too brief a period for the piston or crankshaft to make a perceptible movement. However, it may be possible that the same sort of current that produces the fat spark and reduces the mechanical and electrical lags, may also produce *hot* sparks, thus giving to the fat spark an advantage related to but in no wise due to its size. If, as you seem so sure is the case, it does not matter with your car in which direction the addition of the other ignition system is made, all of the foregoing may be only of general value, rather than of specific. Possibly, under some conditions, the rate of flame propagation within the cylinder may be less high than is assumed, in which case the double ignition works quicker by halving the distance to which the flame from any given starting point need travel. The subject is one that has come in for considerable attention during the past few months, but there is still a great deal to be learned concerning it.

#### Emergency Reserve of Fuel.

Editor THE AUTOMOBILE:

[746.]—Some months ago I read in "The Automobile," or in one of the other automobile papers, of several schemes for maintaining a reserve of fuel in a partitioned-off part of the fuel tank, but now I cannot find the article and wish to adapt the plan to my car. The arrangement was such that the main supply could be used up without drawing upon the reserve. Then, by manipulating some handle, the reserve would be emptied into the main tank, and used as a means of reaching some source of fresh supply. Everything was automatic, too, so that both the main and the reserve portions of the tank would be filled at once without any special precautions to insure the result. My car—a runabout—has a 10-gallon rectangular tank under the seat, and what I would like is information in remodeling it along the lines referred to. If you or any of your readers can supply suggestions, I will be greatly obliged for them.

La Junta, Colo.

BENJ. MILNOR.

There have been considerable numbers of plans worked out for the purpose you describe—most of them very satisfactory. Possibly the best construction for the purpose and at the same time one of the simplest consists of a cylindrical can, extending down from the filling cap nearly to the bottom of the tank. The bottom of this can is closed by a valve that seats from its interior, and which is capable of being opened by a wire stem that rises through a small hole in the filling cap, which opens directly into the center of the can. Around the top of the can are a number of holes, communicating directly with the main tank, so in filling, as soon as the can is full, it overflows into the tank until that is full also. On the road, as the fuel is used from the main tank, that in the can is reserved, its weight keeping the valve below it closed. When the main supply is exhausted, however, the reserve can be emptied into its place by pulling up on the valve wire. For tanks placed low down, so that the fuel is fed to the carburetor by pressure, more elaborate systems are necessary for maintaining a fuel reserve, but the one just described should serve your purpose as well as any, and is probably the easiest to install.

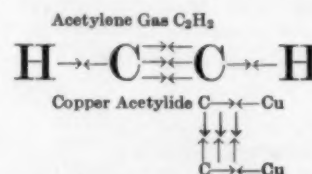
#### THE MYSTERY EXPLAINED AT LENGTH.

Editor THE AUTOMOBILE:

[747.]—In the issue of March 14 of your valuable magazine, under "Letters Interesting and Instructive," I noticed the query of B. A. Burtiss (letter No. 636), which I believe I can answer.

The cause of the explosion which so startled Mr. Burtiss was

copper acetylide. Acetylene gas is acid in its chemical reactions, and in the presence of moisture will act on metals, forming acetylides, or carbides. These metallic acetylides, as copper, silver, and zinc, are very explosive. In these compounds there exists what is technically known as a strained condition of the molecule; that is, to go into the chemistry of it, a carbon atom has four so-called bonds, and when two or more of these bonds unite with those of another carbon atom a more or less unstable compound is formed. In the case of acetylene gas and the acetylides there are three bonds of one carbon atom united with three bonds of the other carbon atom. The following diagram will serve to illustrate the matter:



Such a structure is readily broken down and therefore the compounds are explosive. These are also known as unsaturated compounds.

The writer has experimented with the silver salt ( $Ag_2 C_2$ ) and has found that a piece not much larger than a pinhead will explode with a report like a pistol when it is treated or struck with a hammer.

From Mr. Burtiss' letter I should judge that copper oxide (cuprous oxide) was first formed in the copper tubing—water would aid in the oxidation—then acetylene gas would form a coating of copper acetylide on the inside of the tubes. (Chemical reaction written as follows:  $C_2H_2$  plus  $Cu_2O$  equals  $H_2O$  plus  $Cu_2C_2$ .)

When the tubes were disconnected and the car put away the acetylide would dry out pretty thoroughly, and the bending of the tubes would be a sufficient stimulus to explode this acetylide.

A nice little experiment for anyone desiring to try the explosiveness of the acetylides is this: Take a normal solution of silver nitrate or cuprous chloride (in water)—these can be obtained at a drug store—add ordinary ammonia until the precipitate formed is just dissolved, then connect up your gas generator and pass acetylene into the solution until a grayish precipitate is thrown down; then filter off or pour off the liquid remaining and save and dry the precipitate. Try its explosiveness—but handle with care.

I hope this may be of interest and of use to other readers of your very interesting and instructive magazine.

Lincoln, Neb.

C. J. FRANKFORTER.

#### AN APPRECIATIVE READER OF THESE PAGES.

Editor THE AUTOMOBILE:

[748.]—I am pleased to enclose herewith renewal for one year of my present subscription to your magazine. My only purpose in writing this letter is to express my appreciation of it, especially of the department styled "Letters Interesting and Instructive." Very often the difficulty which besets those who are inexperienced in mechanical and electrical matters is not appreciated by those who write upon the subject. Very often the special articles from experts which you publish are entirely over the head of the average subscriber, and I imagine that the great value of the department above mentioned is due to the fact that ordinarily correspondents are describing difficulties in popular language and without technicalities.

Cambridge, O.

FRED L. ROSEMOND.

#### SWINEHART TIRES GOOD ON SMALL CARS.

Editor THE AUTOMOBILE:

[749.]—My attention has been called to an inquiry from C. C. Butts, regarding the advisability of using Swinehart tires on a small steam car, and your answer to same.

I beg to call your attention to the fact that we have equipped a number of these cars successfully, and will be pleased to refer Mr. Butts to some of our customers. No doubt they will be willing to give him their opinion regarding these tires.

SWINEHART CLINCHER TIRE CO.,

1843 Broadway, New York City.

E. O. Hoopengartner, Mgr.

#### GASOLINE OR STEAM TRUCKS WANTED IN PERU.

Editor THE AUTOMOBILE:

[750.]—I am desirous of securing two freight automobiles of the capacity of two tons, that will go up hill and over poor, rocky roads, about 60 kilometers, with heavy grades. The wheels should be not less than 40 or 50 centimeters, though I am not certain as to which would be the better. Which would be the better for my use, steam or gasoline?

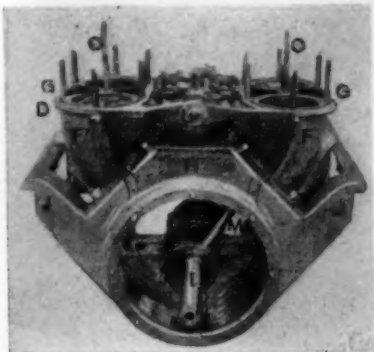
Prisco, Peru.

L. BEST.

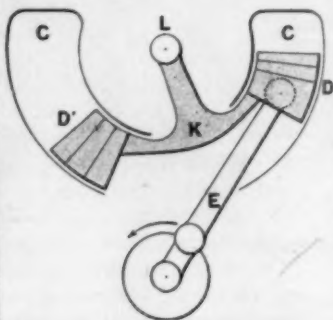


### A MOTOR WITH CURVED CYLINDERS.

An interesting type of automobile engine, and one bearing a certain similarity to the All-British eight-cylinder described in a recent number of *THE AUTOMOBILE*, has been designed by a French engineer. M. Primat, the inventor of the engine bearing his name, explains that in internal explosion motors the pistons guide themselves within the cylinders and exert pressure on the cylinder walls in an irregular manner, according to whether they are being acted upon by the explosion or are driving out the exploded gases. This causes a certain amount of unnecessary



CRANK CASE AND CYLINDERS.



ROCKER ARM AND PISTONS.

work and an abnormal wear (ovalisation) of the cylinders. To remedy this evil he has designed a new type of motor which has much to recommend it in the matter of simplicity. M. Primat takes a balance rod and attaches a piston to each of its arms. The two pistons, as will be seen from our illustrations, reproduced from *Omnia*, do not move in a vertical line, but according to a portion of a circumference of which the center is the pivot of the balance arm. This necessitates curved pistons lodged within curved cylinders, which are constituted in pairs and attached to the crank chamber. Two opposing cylinders are attached to the same balance arm; thus, when one is up the other must be down. As a consequence, it is only necessary for one of each pair of cylinders to be connected to the crankshaft. Any number of groups of two cylinders can, of course, be united together. The length of a motor built under this system is only half that of the usual type of gasoline engine, thus an eight-cylinder Primat would occupy no more space than a four-cylinder of orthodox construction.

A special machine tool has been designed for boring the circular cylinders, enabling them to be produced at no greater cost than for the ordinary type. It is claimed for the motor that it is lighter for a given horsepower than the straight vertical cylinder type, owing to the simplification of its crankshaft and the compactness of the entire motor. The pistons being guided in their course, there is no wear of the cylinder walls, and more efficiency is obtained. There is also an economy in lubrication due to the small number of moving parts.

### A NEW METHOD OF CUTTING STEEL.

A new method of cutting steel has been patented by a Belgian engineer, says *The Mechanical World*. The process consists in first heating the metal by means of an oxy-hydrogen flame and then cutting it by a small stream of oxygen gas, which unites with the steel and forms a fusible oxide; in this condition it flows freely from the cut. The operation is made continuous by revolving the pipe and employing two jets, one containing oxygen and hydrogen, and the other containing pure oxygen, which follows closely in the path of the former. The oxy-hydrogen flame raises the metal to a red heat, and the following stream of oxygen then makes the cut. It is said that the cut is fully as smooth as that made by the saw, and is only one-hundredth of an inch in width.

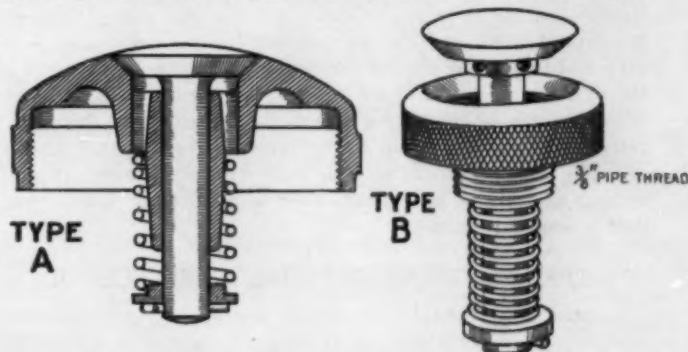
### MOTOR RAIL COACH TRIALS IN BOHEMIA.

A report was recently published in *Die Lokomotive*, on the working of various forms of rail motor cars in use on the railways of Bohemia. The report deals with: (1) A Daimler benzine motor; (2) a Serpollet steam car; (3) two Komarek steam cars; (4) three electric cars, and (5) an ordinary tender locomotive and train. Of these, the Serpollet and Daimler cars appear to have been quite unsuitable for the work, developing as they do only some 25 horsepower. The Komarek steam cars develop about 100 horsepower in working, and compare most favorably with other cars. In working out comparative working costs, the wages of motor man and guard, lubrication, and lighting were included, as well as cost of fuel in case of the petrol or steam cars and locomotive, or of power in the case of the electric cars. It was found that the working expenses of the locomotive and train were 1.69 times, and of the electric cars 1.72 times that of the Komarek steam cars. In the matter of repairs and renewals the locomotive cost 1.95 times, and the electric cars cost 2.12 times the Komarek car. Taking all costs together, the locomotive worked out at 1.73 times, and the electric cars at 1.78 times as expensive to work as the Komarek steam car.

### TO PREVENT WATER LOSSES BY STEAMING.

No matter how accurately the water-cooling system of a car has been designed, nor how liberal a margin of safety has been allowed, there are times when the water will steam more or less actively, if it does not actually come to the boiling point. There is such a close limitation in the shape of weight and space permissible on the modern car that it is impossible to allow any considerable factor of safety in the amount of water carried, and in consequence it is necessary to replenish the radiator more or less frequently, this naturally differing considerably on different makes of cars. This is particularly bad in cold weather, when, owing to the anti-freezing solutions used, the specific gravity of the liquid as well as the proportion of its constituents is constantly varying. It constitutes an evil that autoists have been content to put up with because they knew of no remedy.

To overcome it, Walter C. Baker has evolved a device termed the Radio-Escape, which is being put on the market by the Globe Machine & Stamping Company, Cleveland, O. Its very simplicity and ease of attachment are its strongest recommendations, as it merely replaces the ordinary cap, and can be put on any car by sealing the radiator. To do this the overflow is closed and the new cap screwed on in place of the old. What this consists of



will be plain from the accompanying sectional and perspective views of the two types in which it is made. It works on the safety-valve principle, and is set to blow off at 10 pounds pressure; the pressure of the average sealed radiator being much less than this, there is no danger of straining or exploding it. Any vapor produced is condensed, so that the amount of liquid in the radiator remains practically the same throughout a season's use. This is a valuable feature in summer as well as winter, as the tank can be filled with pure water at the beginning of the season and the formation of scale and corrosion prevented. Though the device is just being placed on the market it is said to have been in constant use during the past four years by its inventor.



HUB-DEEP IN ONE OF OHIO'S ALLEGED HIGHWAYS.

### SOME OF OHIO'S MISERABLE MUD PIKES.

In the majority of respects, the State of Ohio will rank just about as high as any of her sister States, and, unfortunately, when it comes to the matter of roads, she will fall just about as low in the estimation of the average autoist who attempts to navigate them. At least such is true of the roads of Meigs county, and such is the opinion of Norman J. Theiss, who undertook to negotiate some of them with his car. That he succeeded in traveling will be evident from the accompanying photograph of his plight, but it will also be apparent from the picture that he was trying to travel in the wrong direction—as the local wit put it, "He was bound for Hong Kong."

Probably the average countryman will be apt to remark that the charge is somewhat unfair—the picture must have been taken in the dead of winter, when the roads had been flooded and all cut up during the bad season. As a matter of fact, the picture was taken about the middle of last June. The spot depicted is on one of Ohio's typical dirt roads between the towns of Athens and Pomeroy, and just to give the world in general some idea of the disadvantages that beset the autoist in that part of these United States, Mr. Theiss sent the photo to *THE AUTOMOBILE*, with the request that it be added to the road rogues' gallery. The road is one of the most important in the country and should be a good one, but there are 20 miles of it like that shown. The wit who added the saying "down and out" to the vernacular must have had some such situation as this in mind when he coined it for as soon as the car gets this far down every one gets out. When the car stopped going downward by reason of the differential and axle preventing further progress in that direction, a sounding gave 16 inches of clear mud with no bottom. It goes without saying that it was far easier to get the car in this mess than it was to release it.

### GERMANY OPENS OFFICIAL AERO SCHOOL.

According to Consul Thomas H. Norton, all arrangements have now been made for the opening of a school at Chemnitz, Germany, for theoretical and practical training in the management and construction of air ships. The authorities have given their official approval of the institution, which is to be under the direction of Herr Paul Spiegel, a textile manufacturer of broad experience in every phase of balloon construction and management, who has made over six hundred ascents and has done much to awaken interest in aerial navigation.

Chemnitz is admirably adapted for the location of the schools, as it is the leading center for the manufacture of engines, motors, etc., and is important as a textile center. In view of the exceptional expense attendant upon a course of aerial instruction, more particularly the cost of the frequent inflation of balloons, the

tuition charge for a year's course, from May 1 to April 30, has been fixed at \$149. The curriculum, divided into two divisions, is as follows: Calculation of volumes, cutting of the materials of a balloon, preparation of impermeable fabrics, construction of nets, safety valves, lectures on the theory of aerial navigation. Division 2: Inflation of balloons, ascent of passengers, physical instruments employed, meteorological observations, independent management of a balloon, lectures on the problems of aerial navigation, dirigible balloons, aeroplanes and motors. The course of training given in the school will be particularly valuable for young men who purpose later to enter the aeronautic corps.

### A RECORD CLIMB OF MT. HAMILTON.

One of the places to which San Franciscans may go is Mt. Hamilton, near San Jose, the site of the Lick observatory, and the road between San Jose and the observatory is one that tries the mettle of any car. As the crow flies the distance would be but thirteen miles. There is, however, a rise of 4,200 feet on the way to Hamilton's summit, and the road has exactly 365 turns, or one for each day in the year. So, although the crow says thirteen, the distance-measuring machine on the dash says twenty-eight miles when the climb is completed.

One hour and forty-five minutes has, until recently, been the best record for the course, but fifteen minutes was clipped from that amount a short time ago by a Thomas Flyer in which were Mr. and Mrs. C. H. Woodruff, of San Francisco, Miss Woodruff and Mr. Sidney Woodruff, together with the driver. Mr. Woodruff and his son are in the contracting business at San Francisco, and went from San Francisco to San Jose the day before.

At 9:30 the start was made, and the ascent was completed at exactly 11 o'clock. Not a stop was made on the way. When about half the distance had been covered another machine was seen stranded in the mud. An offer of help was made by Mr. Woodruff, but was somewhat summarily refused by the occupants of the second automobile, who reached the top of the mountain a couple of hours later.



THOMAS CAR AND PARTY AT LICK OBSERVATORY.

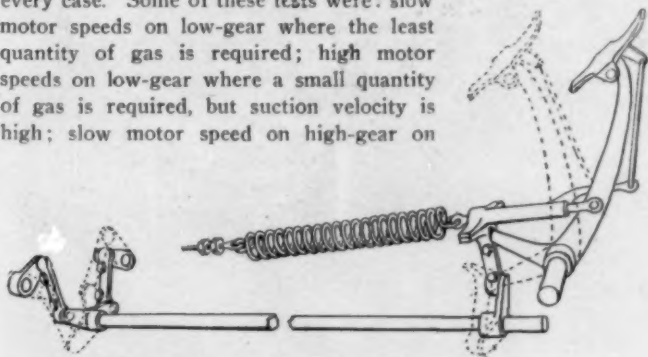




MAYOR OF DUBUQUE, IA., CHIEF OF POLICE AND STAFF IN ADAMS-FARWELL CAR.

THOUGH it seemed as if neither inventive nor mechanical genius could go further in the evolution of the power plant of the special type employed in the Adams-Farwell car, when it was first brought to light several years ago, detailed improvements have been found possible, particularly in the case of the carbureter and ignition timer. It will be recalled that the design of the Adams-Farwell motor represents a sort of process of elimination as compared with motors of equal power of the standard type, in that it has five cylinders, with but a single crank, and no muffler, and though completely encased against dirt and dust, is air-cooled, achieving the last word in the matter of simplicity and fewness of parts.

In improving the carbureter used on the 1907 model exactly the same principle that has been found so successful during the past four years has been retained, but the apparatus has been made even more simple than it has been in the past, if that is possible, when it is considered that the Adams-Farwell carbureter was simplicity itself at the outset. The trouble with some inventors and likewise some manufacturers, particularly when they are dealing with a highly specialized system, such as that under review, is that they are always at pains to lock themselves up in a closet so far as what is going on in the outside world is concerned, and can only talk the perfection of their own products without the least knowing the good or bad points of the other fellows. Instead of following any such plan of procedure, the makers of the Adams-Farwell cars did quite the opposite; they went into the open market and purchased a number of carbureters of the best known standard makes and tried them all, one after the other. Each one was attached to the same motor, on the same car in turn, and put through the same tests under exactly the same conditions, the performance being carefully noted in every case. Some of these tests were: slow motor speeds on low-gear where the least quantity of gas is required; high motor speeds on low-gear where a small quantity of gas is required, but suction velocity is high; slow motor speed on high-gear on



DETAILS OF THE ADAMS-FARWELL PEDAL CONTROL.

long, steep hills, where maximum quantity of gas is required but suction velocity is low, and high motor speeds on high-gear, where the maximum quantity of gas is required and the suction velocity is also high. These tests extended over several months, and in the end they resulted in the continuance of the same old principle on which the Adams-Farwell carbureter had always been built, but the device was further simplified by the elimination of the leather gas bag formerly thought necessary, the shortening of the gasoline passage from three to one inch, with one point of restriction, and that point at the end of a valve rod that can be lifted out, cleaned and replaced in a minute without altering any ad-

justments. Depositing the spray directly in the distributing chamber as it came from the nozzle was also found to result to advantage. The constant level reservoir with overflow pipe—so long a standby in stationary practice, and found to work equally well on the automobile, has been retained here in preference to any gravity and float-feed system. The fuel tank is placed well forward on the car and low down, but the pump is supplied at all times regardless of the position of the car on hills or on the level. This carbureting system is adapted to handling the very lowest grades of gasoline with equal satisfaction, or even a mixture of half gasoline and half kerosene, once the motor has been warmed up on the former. Naturally much of its efficiency is due to the fact that it has been designed as a



AS THE PEDAL APPEARS IN PLACE.

counterpart of the unique variable compression system used.

In nothing is the Adams-Farwell motor more strikingly simple than its electrical equipment, which is about equivalent to that of a single-cylinder motor, consisting as it does of but one coil, one short secondary wire, one primary wire and a simple timer. The feature of revolving the cylinders about the crankshaft is utilized to distribute the secondary current, each plug being connected to a fiber insulator by a short wire, a screw in this insulator passing under the distributor without actual contact.

Another essential that has been simplified is the control of the change speed-gear. This element of the unit power plant, and upon which the motor is directly bolted, provides four speeds forward and reverse by means of two independent clutches, either of which may be brought into action by the pedal, which is here shown in detail and in place on the car. A push forward on the pedal disengages the clutch that may be in at the moment, and a tilt of the foot determines which one will engage when the pedal is released. It is impossible to engage both clutches at the same time or to engage either until the gears controlled by it are fully in mesh or in neutral.

## ACME PRODUCTIONS FOR PRESENT SEASON

**A**LTHOUGH there is considerable variety in the external appearance of the four models produced by the Acme Motor Car Company, of Reading, Pa., and a difference in purchasing price that is not negligible, the mechanical make-up of the group presents such slight differences that a description of one may serve as a presentation of them all.

Type XVIII, a comfortable side entrance touring car, with



ACME TOURING CAR, TYPE XVIII, 40-H.P. SEVEN-PASSENGER CAR.

accommodation for five or seven passengers, has as its motive power a four-cylinder, 40-horsepower engine. The body, which is of the King of the Belgians design, is well built of best seasoned ash, poplar and basswood, upholstered in best quality hand buffed leather, pebble grained and French finish. Standard colors are Brewster green for body, with running gear in dark carmine. With its cape hood, acetylene headlights and complete set of fittings, the machine has a handsome appearance as a reliable, comfortable touring car of the highest grade.

A pressed steel frame, with a substantial subframe for carrying engine and transmission, properly braced and bracketed, gives a wheelbase of 115 1-2 inches and a track of 56 inches. Ten inches road clearance makes the machine available for duty on routes that cannot be classed in the highest category. The engine is mounted on the sub-frame, and has four vertical cylinders cast separately, with water jackets and cylinder heads integral. Bore is 4 1-2 inches and stroke 5 inches, the engine running from 250 to 2,000 revolutions per minute and developing 40 horsepower at 1,000 revolutions per minute. Valves are on opposite sides, all mechanically operated and interchangeable, cams being integral with shaft, the spark plugs being placed directly over the inlet valves. Ignition system is thoroughly up-to-date, as will be at once admitted when it is learned that an Eiseman high-

tension magneto is employed. The carbureter is an automatic compensating Schebler. Drop forged nickel steel of 120,000 pounds tensile strength is employed for the crankshaft. The crankcase is divided transversely, thus assuring the proper supply of lubricating oil for each cylinder when working on long, steep hills. Lubrication is of the sight, force feed, splash system to engine and transmission.

A tubular radiator with belt driven fan and water circulation assured by gear-drive centrifugal pump keep the engine cool, under even the most adverse conditions. The water capacity is four gallons.

Coming to the transmission, the first unit in this important factor of an automobile is a large leather-faced cone clutch, fitted with a unique type of springs providing very easy manipulation. Four speeds and reverse are obtained through selective sliding gear, with direct drive on third speed. All gears are of chrome nickel steel, oil tempered. A single side lever operates all forward speeds and reverse. Final drive is by side chains from sprockets on countershaft to sprockets on rear road wheels. Twenty-three gallons of gasoline can be carried in the tank, with two gallons in a reserve tank.

Two distinct sets of brakes are provided, one consisting of two compensating band brakes on the differential and the other of two internal expanding ring type on the rear wheel drums. They are operated by foot pedal and by side lever. Additional security is provided by a sprag of the external ratchet type on the sprocket for each road wheel. Throughout the transmission Hess-Bright ball bearings are used. Steering is by 16-inch wheel with quadruple screw and nut, and is of the irreversible type. Engine control is by means of conveniently placed spark and throttle levers on sector on the steering wheel. Easy riding is assured by semi-elliptic springs 44 inches in front and 52 inches in rear. Total weight of this machine, with full equipment, is 3,000 pounds.

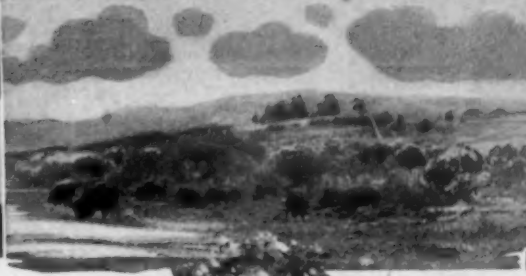


CAPTAIN JENKINS IN HIS ACME CAR AT CREEDMOOR, L. I., RIFLE RANGE.

The rifle team of the 71st Regiment, N. G. S. N. Y., is in practice on the range. Capt. True of the staff is one of the party in the car.



## A CRUISE ACROSS THE CONTINENT



**T**ALK about roaming gypsy-like, not in the old-fashion wagons and trading worn-out horses as you go along, but in an up-to-date touring car across the North American continent, a great part of the distance through territory where an automobile has never been before! There have been several transcontinental trips of a strenuous sort, but very few owners of cars have undertaken the journey from ocean to ocean, with the solitary purpose of having an enjoyable experience, varied and trying and still well worth the hard work embodied, and bringing with it a feeling of having done something which has not been accomplished by many others.

W. S. Gehr, of Wenatchee, Wash., was an owner who last year journeyed from his native town across the country. He gives an interesting account of the auto voyage from the State of Washington to New York, a trip 4,900 miles long. Mr. Gehr with his wife, accompanied by two friends, left Wenatchee in June in a Glide touring car. They carried a complete camping outfit—tent, cooking utensils, block and tackle, guns, fishing rods, and tools.

The party traversed a wild, mountainous country in the early stages of the journey, and met only three teams in covering a distance of 500 miles, and gained the distinction of piloting the first automobile from their home city to Butte, Montana. While profuse in his praise of the superb scenery along the route, Mr. Gehr maintains that to return westward the same way they came would be an utter impossibility, and that further than Livingston, Montana, it is out of the question for an automobilist to force his way in a westerly direction over this route. He advises a much more southerly course.

An outline of the itinerary East, with comments on the character of the roads, follows:

Leaving Wenatchee, located near the geographical center of the State of Washington, they crossed Columbia river and followed it north to Orondo, seventeen miles over sandy roads, thence due east away from the river and up a grade of 2,000 feet in four miles to Waterville, and via Soap lake over bad roads to Coulee City on the Northern Pacific railroad, which railroad they followed more or less closely for several hundred miles. The road from Coulee City, via Deep creek and Medical lake to Spokane, was good, and continued good to Rathdrum, Idaho. Thence over a very bad road full of stumps, crossing

Clark's river at Laclede Ferry and along the river to Sand Point, around the north shore of Lake Pend d'Oreille over extremely rough trails to Hope and Clark Fork and over mountain trails to Trout Creek, Montana. In descending a mountain side in this vicinity they had to slide down by means of block and tackle a distance of one and one-half miles at a grade between 40 and 50 per cent., a task that took an entire day.

At Thompson Falls they crossed Clark's river again and followed it to Plains, where, owing to a precipitous mountain, they had to make a detour of fifteen miles into the Flathead Indian Reservation, rounding back to the river at a point five miles below Plains, where they crossed on an Indian ferry. They continued to Ravalli on the Reservation and south up Joeko creek to the summit of Bitter Root mountain and down to Missoula. Thence along railroad up Hell Gate Canyon and over Flint Creek hills through Drummond to Garrison, whence a turn south was made through Deer Lodge to Butte.

The route now led over the summit of the Rocky mountains to White Hall, along the railroad through Sappington and Logan to Bozeman, then across Gallatin Range to Livingston. The party had intended to visit Yellowstone Park just south of Livingston, but found that automobiles were not allowed in the park, so continued their journey eastward over somewhat better roads along the Yellowstone river, through Columbus, where they experienced a road like a staircase with three-foot jump-offs; however, they got over it safely, passed on through a sheep country to Billings, and kept the south bank of Yellowstone river to Custer, where they crossed over to Junction and followed the north side of the river to Miles City.

Here again they crossed the river, and traveled away from same due east to bridge over Powder river and southeast to Ekalaka, over Horse creek and a ford across Big Box Elder river to Camp Crook, South Dakota; thence due south to Belle Fourche and into the Black Hills to Deadwood; onward northeast to Whitewood and southeast to Rapid City, whence the course led east over the Deadwood-Fort Pierre emigrant road via Smithville on Cheyenne river to Pierre. Now along the Chicago and Northwestern railroad, via Blunt and Huron to Lake Preston, south via Madison to Sioux Falls and across Missouri river into Iowa.



The roads across the State of Iowa were uniformly good; the route passed through Spirit Lake, Spencer, Sioux Rapids, Storm Lake, Sac City, Lake City, Glidden, Jefferson, Grand Junction, Perry, Dallas Center, Ortonville, and Waukee to Des Moines, whence it followed the course of the Chicago, Rock Island and Pacific railroad through Newton, Grinnell, Marengo, and Iowa City to Davenport, and crossed the Mississippi river into Rock Island, Illinois.

Through the State of Illinois the roads were found to be of gravel and in good condition. In traversing this State they passed through Coal Valley, Orion, Cambridge, Galva, Wyoming, Princeville, Peoria (the home of their Glide), Eureka, El Paso, Fairbury, Chatsworth, Gilman, Wauseka and Sheldon to Kentland, Indiana.

They found stone roads in excellent shape throughout Indiana and Western Ohio, in passing through Monticello, Logansport, Peru, Wabash, Huntington, Fort Wayne, Ind., Defiance, O., Napoleon, Grand Rapids, Bowling Green and Woodville to Fremont, from which point the roads were bad east through Norwalk and Elyria to Cleveland. The route now followed the well-beaten path of the usual automobile route through Erie, Buffalo, Rochester, Syracuse, Utica and Albany to New York.

#### TRANSCONTINENTAL AUTOING.

Not long ago A. L. Westgard, secretary of the A. C. A. Bureau of Tours, in the course of an article on "Transcontinental Automobile Trips," had the following to say:

"One thing learned by the trips already made is the real nature of the country west of Chicago—a land of floods at all seasons of the year, of deserts and sagebrush plains, and deep prairie roads. The vast stretch of country between the Rocky mountains and the Sierra Nevadas is a country with stiff climbs and steep descents in succession. Quicksands seem to be one of the terrors of the routes. Another lesson is that what one on starting out considers easiest is likely to be the very place where failure awaits.

"However, it is not only in the Western States and the mountain regions that the automobile-

transcontinentalist meets with hardships that tax his resourcefulness to the full. The majority of roads in the Middle and Eastern States, especially in wet weather, are a difficult problem to tackle and are apt to be quite as serious a bar to comfort, speed and time-records as any physical difficulties encountered in the West.

"To think of a perfect highway from the Pacific to the Atlantic—and why not—is certainly a dream of the future, which makes one tingle with pleasurable anticipation. The difficulties are by no means insurmountable; it will take loads of money—but then, we are a rich nation.

"It is notable that seven out of the eleven trips so far made are from West to East, and of the four going from East to West three were to Portland and only one to San Francisco. This is no doubt due to the fact that the ascent of the mountains is easier when traveling in a westerly direction. A glance at the map of the United States will show that the trails of the accomplished trips are snake-like in their crookedness, and several hundred miles are added to the air line on account of the many mountain ranges and the desert regions; also that for almost the entire distance the course follows the line of some railroad. This feature is probably due not only to the fact that the railroads have naturally chosen the path of least resistance, but also because supplies of all kinds are more readily procurable along these lines.

"The tenth trip was the record-breaker and is apt to stand as a record for a long time, until road conditions change radically through the entire length and breadth of the country. It was successfully carried out by that "old-timer," L. L. Whitman, and his companion on his last tour, C. S. Carris. They left Stockton, California, August 2, 1906, in a six-cylinder Franklin car. By traveling night and day, assisted by relays of three extra drivers, who took train between stations, they covered practically their old route to New York in 15 days 2 hours 12 minutes, cutting their old record down more than one-half. The actual running time was 11 days 8 hours, and was made in ten relays, working with five men in twelve-hour stretches."



GOING THROUGH HELL GATE CANON



THE OLD AND NEW WAY ACROSS THE CONTINENT.



CROSSING AN IDAHO MILL FLUME.



A GOOD TROUT STREAM IN THE ROCKIES.



## THE ORGANIZATION OF THE GRAND PRIX

**A** TWOFOLD ambition flames in the breast of every Frenchman: that France may be the scene of the most important automobile road race in the world, and that a French car may be the victor. The latter is a matter which concerns the constructor, who is being urged to greater exertion every year by formidable Italy, industrial Britain and baby-giant America. To secure for France the most important road race of the world is the task of the national club, and with her perfect set of roads and indulgent government it is likely that she will find it easier to remain at the head in this branch of the industry than in others which might be mentioned.

When the Gordon Bennett was buried alive, the French club took a mighty resolve to organize such a race as would attract the attention of the whole world and place them in a supreme position as road race organizers. The outcome was the Sarthe 800 miles contest, the longest one ever held, on the fastest set of roads that France could provide. This year there is a change of programme. The A. C. F. will appeal to the masses by holding its race on a short circuit, only three hours from Paris, five hours from London and at the doors of the most popular coast resort on the English channel. It is a triangular course that has been selected, 47 1-2 miles round, to be covered ten times by each competitor, thus providing for the passage of cars every few minutes, and giving a constant play to the gallery. It is a medium course, fast enough in places to astound the spectators by the speed of the machines, but with sufficient difficulties to keep the men alive to their task.

### Cars Will Start from a Wood Side-Track.

On the leg of the triangle running almost parallel with the coast line, only three miles from the town of Dieppe, and less than a mile from the sea, is the spot on which the grandstands are being erected. It is an ideal situation, for not only can the cars be seen five miles away coming down the road toward the stand at their highest speed, but after they have doubled round the Fourche they can be seen again three miles away, rushing down the second leg of the triangle, a unique occurrence in a road race. Previously the grandstands have been on the inside of the circuit, where visitors were imprisoned until the last car had finished its course, often four or five hours after the arrival of the winner. This time the stands will be on the outside, with their back to the sea, available for arrivals or departures at any moment during the contest. Another innovation, and the greatest novelty of the course, is that a short distance before the grandstands, and well in view of the spectators, there is a loop road rejoining the main track 350 yards further down. It is on this track, specially constructed of wood, that the tire and gasoline stations will be placed, a separate station being provided for each car. Between the wood track and the main course is an island, united to the outside of the course by a tunnel, where pressmen and a few officials will be penned away from the common crowd. Machines needing tires, or a further draft on their limited allowance of gasoline, will run into the side track, take what they need from the eager attendants on the opposite side of the stout barrier, and rush away without wasting time in idle thanks. When running out of the loop into the main course there was a danger of a machine coming into collision with another car rushing past at something under two miles a minute. To prevent this the main track has been divided into two at the junction, thus a car rejoining the main road would not come into it abruptly, but would be kept in a narrow channel sufficiently long to allow the driver to straighten out and see that no other car was immediately in his rear. Machines needing supplies will rush by at their highest speeds, and in order that the public may have an idea of the rate of travel, Venetian

masts will be planted on the border of the road, at intervals of one kilometer. All is calculated to avoid dull moments; work at the tire and gasoline stations as well as displays of high speed being constantly under the eyes of the public.

### Making Accommodation for Record Crowds.

The starting point of the race is at the junction of the side track and the main road, the file of cars being drawn up on the wood track. Should Lancia finish his first round before the thirty-eighth machine has been sent away, there will be no obstacle to the Italian machine's wild flight past the stands. The sketch published herewith shows the general arrangement at the starting line. The three main grandstands are placed diagonally to give a view of the arrival of the racers and allow the spectators to watch the operations at the tire and gasoline stations. Opposite, on the inner side of the circuit, is the score board, also placed diagonally. To the rear of the stands is a large plot of land on which will be erected a select camp, the bare land being let to those who are willing to erect whatever temporary home they may desire; 808 cars can be accommodated in a main garage and 385 in a smaller one. There will be a refreshment room, kitchen and storerooms, ambulance headquarters, and post and telegraph office. Special roads will be constructed in the rear to allow of the arrival and departure of touring machines. Even bicyclists will be cared for, a special garage being constructed for their humble mounts. On the inside of the circuit, opposite the grandstands, will be a popular stand where for the modest sum of forty cents Tom, John and Harry may watch the speed kings of six nations at work. It is almost a revolution in European road racing, for hitherto the poor man has been kept away from auto races by excessive tariffs and long distances. The man in the street will very probably be further provided for by a popular camp where for a modest sum he can obtain a bed under the stars and three square meals.

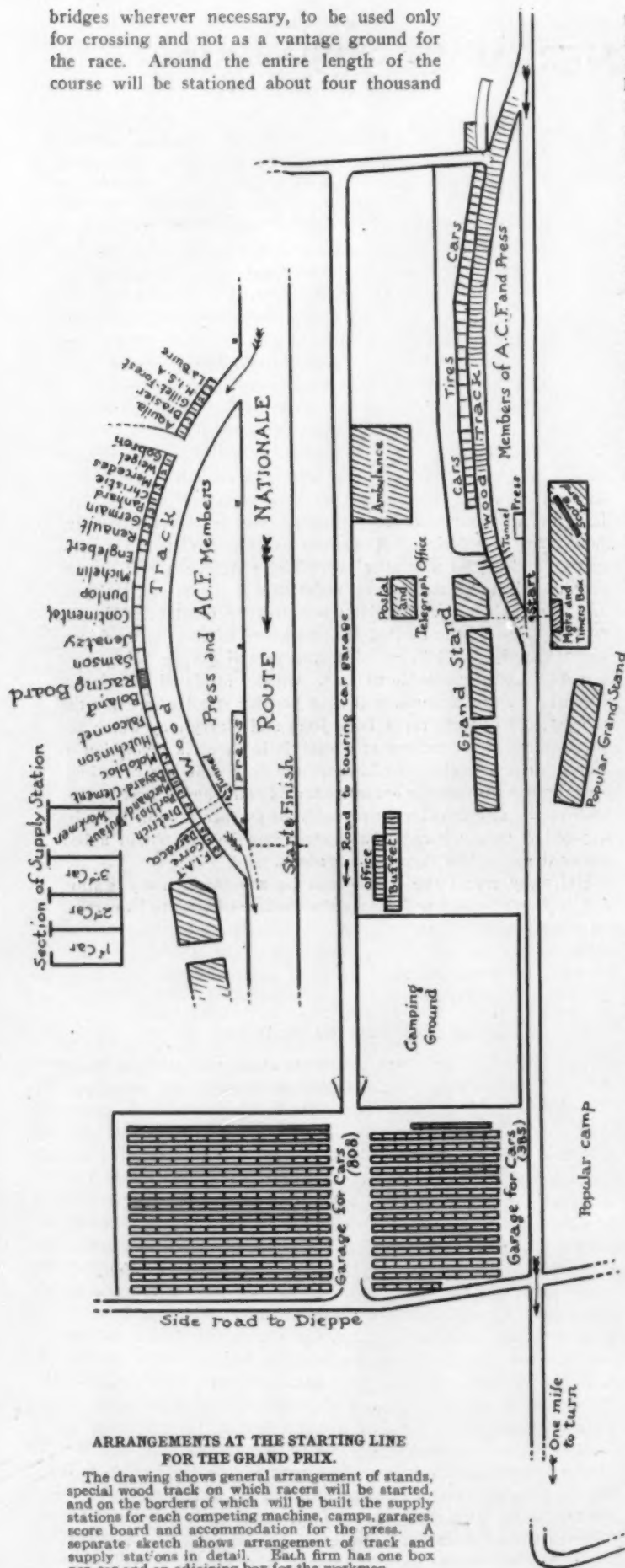
Half way round the course will be a second supply station for tires only, which will reduce the number of tires to be carried on the machine, for at no point will a car be more than twelve miles from a station. At the second stand the inflated tires will be hung on hooks on the outside of the barricades separating the stand from the course.

### How the Race Will Be Made Safe for All.

Away from the stands an enormous amount of work is being done in making the course safe for participants and spectators. The difficult turn at La Fourche (the fork) will have an escape road, that is the prolongation of the main road past the bent, to allow an escape for any driver who has miscalculated his distance and cannot get round the turn. Almost the entire fifty miles of the circuit will be relaid, and the whole course will be either tarred or treated with salts. Between Londinières and Eu the road will be enlarged to the minimum width of twenty-one feet. Between Envermeu and Londinières trees bordering the road will be cut down and a portion of the wall separating the course from the railroad track will be abolished to give greater width. Trains, of course, will not run on the day of the race. There is a grade crossing near Londinières which will be abolished by filling in the openings between the rails with cement. At various bends the road is being made exceptionally wide to allow the curves to be taken without danger, but no artificial banking up will be done, as was announced some time ago.

Every by-road running into the circuit will be barricaded, and every village will have a stout fence down the main street confining the people to a narrow path in front of their cottages. In order that communication between one side of the village and the other may not be completely stopped, there will be overhead

bridges wherever necessary, to be used only for crossing and not as a vantage ground for the race. Around the entire length of the course will be stationed about four thousand



#### ARRANGEMENTS AT THE STARTING LINE FOR THE GRAND PRIX.

The drawing shows general arrangement of stands, special wood track on which racers will be started, and on the borders of which will be built the supply stations for each competing machine, camps, garages, score board and accommodation for the press. A separate sketch shows arrangement of track and supply stations in detail. Each firm has one box per car and an adjoining box for the workmen.

troops, with the same number in reserve, to relieve their companions during the day, giving a military force of about 8,000 men. Many of the portions of the road, especially those in the neighborhood of towns and villages, will be guarded by troops forty-eight hours before the race. A few hours before the start the road will be closed to all comers and will not be open again under any circumstances until the time limit fixed for the arrival of all the cars. Excepting the cordon of troops and the committeemen spaced around the course at intervals of one kilometer, not a person will be allowed on the track. Pressmen, officials and other busy bodies will be unceremoniously hustled off, and kept off. These excellent precautionary measures are only possible by reason of the hearty co-operation of local authorities and the insistence of the government on a course more carefully guarded than an Imperial Russian railroad train. The functions of the eighty inspectors, or more correctly the one hundred and sixty, for they will be placed around the course in pairs, are to observe the cars in their passage and prevent any infringement of rules, noting particularly that no gasoline is obtained from outside sources. With such supervision he would be a bold man who would endeavor to smuggle fuel into his tank.

Hopes are high that King Edward will visit the Dieppe course. As no preparations for the housing of the Merry Monarch would be necessary, the king arriving on his yacht, sleeping on board, and driving in an automobile to his private box in time to see the dashing Lancia speed away, the labors of the protocol are considerably simplified, and there is every possibility of King Edward shaking hands with President Fallières. Although not forming a part of the programme of the Grand Prix, the motor boat races to be held off Dieppe on the preceding day are sufficiently intimately connected with the automobile race to be included in the work of the organizing committee. There will be a 100 kilometer race for the Channel Cup, a 50 mile cruiser contest for the Dieppe Cup and a 35 kilometer hydroplane race, on a four kilometer triangular course close in shore.

#### WAGNER QUILTS DARRACQ FOR FIAT.

PARIS, May 6.—Wagner will drive a Fiat racer in the Grand Prix. A sensation was caused in Parisian automobile circles when this morning the news went abroad that the Darracq champion, the winner of the last Vanderbilt Cup contest, had left the firm of Darracq, with which he had so long been connected, and would form a team mate with Lancia and Nazarro in the race that is likely to be the most keenly contested of any automobile race in Europe and the one in which Italian competition was never more feared by the French. Wagner has not signed a contract directly with the Fiat firm, but has made an arrangement with Emile Lamberjack and Ernest Loste, sole French representatives for Fiat, to drive for them in all the important contests in 1907. It will be remembered that the Fiat entry for the Grand Prix was not made by the Fiat firm, but by Emile Lamberjack, who paid the double entry fee and ordered the construction of three racers at his own expense. Wagner will make his first appearance on a Fiat in the German Emperor's Cup, to be run on the Taunus circuit. The chances of the Fiat team in the Grand Prix are looked upon as being exceptionally good, Wagner being one of the coolest, most daring and most experienced drivers to be found in this country. No announcement has yet been made by the Darracq company regarding a substitute for their departed champion.

#### Darracq to Abandon Racing Game.

According to a cable report to the *Herald*, the Darracq directors have decided to withdraw from all races this year as a protest against the action of Wagner in engaging to drive a Fiat car. They will put their machines on sale so that independent sportsmen may purchase them and participate, free of all entrance fees, in the various contests of the season at their own risk.



## MAY DAYS INSPIRE ENERGY IN CLUB LIFE

### Worcester Club Keeps President Coghlin at Its Head.

WORCESTER, MASS., May 13.—The Worcester Automobile Club at its annual meeting made the first move in what may prove to be an endurance run for New England by appointing this committee to take up plans for such a contest and report to the board of governors later: Frank L. Murdock, chairman; Vice-President Daniel F. Gay; James W. Murphy, Frank L. Coes, and George Stowe. Plans are tentative thus far, but Mr. Murdock and others of the committee believe there is a chance to have an economy and endurance run under the auspices of the club on some of the best roads in the country to test the flexibility of the cars now on the market. Members of the committee have already received assurances from makers which encourage them to believe there will be entries and interest enough to make up for lack of a Dead Horse hill climb this year. The club has decided to have no hill-climb on Dead Horse hill this year, as control of the highway could not be obtained.

President John P. Coghlin of the club in his annual address at the meeting suggested the feasibility of the club acquiring real estate and constructing a mile course which will have as heavy a grade in it as the famous Dead Horse hill, where climbs have been held the past two years.

These officers and governors of the club were re-elected: President, J. P. Coghlin; vice-president, Daniel F. Gay; secretary, Frederick E. Frost; treasurer, William N. Stark; governors, Alfred Thomas, M. P. Whittall, Frank L. Murdock, C. Leslie Chamberlain, George D. Webb, Albert H. Inman.

President Coghlin stated in his annual address to the club that Worcester Automobile Club is now fourth in size in the United States. It had, May 1, a membership of 516 in good standing. Its receipts for the year ending April 30 were \$8,012.67, and it closed the year with a balance of \$184.50 in cash on hand.

President Coghlin in his address placed special emphasis on the advantages of membership in the A. A. A., urged co-operation with the plans of President Hotchkiss of the national body, and predicted unparalleled success for the A. A. A.

The report of Vice-President Gay, who is chairman of the board of governors and the legislative and legal affairs committees, showed a very successful year in handling the cases of motorists who have been victims of country constables and their stop-watches. Plans for a club garage, for a roof garden and club bowling alleys were discussed at the session.

Old Home Week in Worcester will be celebrated in carnival style, June 17, 18, 19 and 20. It is under charge of Worcester Merchants' Association, of which President John P. Coghlin, of Worcester Automobile Club, is a director. It is planned to have an automobile parade as one of the features of the week and President Coghlin hopes to have the club make the best showing ever in Massachusetts, for his club is numerically stronger in members and large cars than ever before.

### A. C. of Bridgeport (Conn.) Opens New Clubrooms.

BRIDGEPORT, CONN., May 13.—The Automobile Club of Bridgeport is now located in its new headquarters in the rooms of the Business Men's Association in the Lincoln Building. Some forty members attended the opening meeting in the rooms. Chairman R. M. Sperry reported successful indications for the May 30 climb up Sport Hill. The Yale Automobile Club stated that it would probably supply six entrants and offered to put up a cup in one of the events. Chairman Harry Gates of the committee on signs reported that signs are to be procured and placed at bad turns in the roadways in the vicinity of Bridgeport. President Frank Miller presided at the session.

### Harmony in the New Jersey Automobile and Motor Club.

NEWARK, N. J., May 13.—The threatened legal controversy over the election of officers of the New Jersey Automobile and Motor Club, held the early part of last week, has been averted; there will be no contest because of the proxy votes which were cast, and the new officers will serve as elected. William C. Shanley, who headed the independent ticket as a candidate for president, authorized the following statement to be made:

"W. C. Shanley, who was at the clubhouse on Wednesday night attending the meeting of the officers and board of trustees, stated most emphatically that under no circumstances would any legal controversy regarding the election held on the 6th instant be entered into; that he believed harmony must and will prevail among the members, and that one of the principal objects of all concerned should be to work together and do everything possible to continue to build up the club with desirable members."



1907-8 OFFICERS OF THE NEW JERSEY A. AND M. CLUB.

Standing—Left to right: J. Rolfe Denman, W. C. Crosby, Ex-President James R. English, W. F. Kimber.

Sitting—Left to right: W. C. Shanley, Ex-President, J. H. Wood, President Angus Sinclair, L. T. Wiss, Secretary H. A. Bonnell.

The officers elected are: President, Angus Sinclair; vice-president, Louis T. Wiss; secretary, Horace A. Bonnell; treasurer, J. C. Coleman; members of the board of trustees, Joseph H. Wood, W. F. Kimber and W. C. Crosby.

### New Plan for Orphans' Day Celebration in Brooklyn.

BROOKLYN, N. Y., May 14.—In connection with the annual celebration of Orphans' Day, June 12, the Long Island Automobile Club has adopted a new plan, devised to take the place of the parade which has hitherto prevailed on these occasions. This year the majority of the cars that have been donated for the occasion are to be assigned to one of the institutions whose inmates are to be taken out for the day. The cars will be driven to the place agreed upon, receive their loads of children, and they will be taken for a ride which will last until it is time for the small passengers to be taken to Coney Island for their lunches.

There were a great number of automobile owners who were not willing to have their machines take part in a parade, as they thought it would make them too conspicuous. Many of them said, however, that they would be perfectly willing to volunteer the use of their cars and the services of their drivers if some manner of avoiding the parade feature could be devised, and it was owing to this feeling that the Brooklyn clubmen made the change. The number of cars offered has nearly reached the hundred mark, and the Long Island Club committee hopes to

largely increase this within the next few weeks, as the changed plan has met with great favor among owners of cars.

With a view of remedying the bad condition of Brooklyn's streets, the Long Island Automobile Club has authorized Chairman R. G. Kelsey, of the Good Roads Committee of the club, to issue several thousand postal cards asking the recipient to name the streets or avenues in the vicinity of his home or business which are in need of repair. He also asks the members of the club to keep a supply of these cards in their cars and to make a note of a bad spot wherever the occasion may arise.

#### Geneva's Club to Ask Visitors to Observe Law.

GENEVA, N. Y., May 13.—At the annual meeting of the Geneva Automobile Club officers were chosen for the year. Hugh L. Rose, the past five years president and one of the founders of the club, declined another term, and F. W. Herendeen was elected. Charles W. Fairfax was named as secretary and treasurer. There are in the club over fifty members, of seventy owners of cars in the city, and it is expected that the others will become members before the close of this season.

At the meeting it was decided that the club would only stand for quiet and decent running of cars through the streets of the city. Signs will also be placed on the roads entering Geneva asking tourists to observe the speed law as a favor to the local club. The signs will also give directions as to roads and name the dangerous points.

It was decided to hold a club run from Geneva to Canandaigua as soon as the weather will permit. The members of the club will parade the streets before leaving on the run.

#### Grand Rapids Club to Assist Police.

GRAND RAPIDS, MICH., May 13.—The fact has developed in Grand Rapids that there are dozens of automobiles running about the streets with bogus numbers attached to them. The fact has already caused the police all kinds of trouble through the inability of the department to locate reckless drivers. When an automobile owner gets a license he also gets a large number which must be conspicuously displayed upon the rear of the machine. On several occasions recently persons have been run down and drivers have speeded away without stopping. The number of the machine was caught several times, but an investigation showed the former owner of the number or the present owner to have been in another part of the city or at home.

The children of the St. John's Orphan Asylum will be given a ride by the Grand Rapids Automobile Club, June 12. The trip will be through the city and into the surrounding country. A committee has been appointed to arrange for tours for the club, and already a number of runs are in sight.

#### Washington Club's Decoration Day Run.

WASHINGTON, D. C., May 13.—The Automobile Club of Washington will have its first run of the season on Decoration Day and it promises to be the most elaborate affair the club has ever undertaken. Frederick, Md., and the Gettysburg battlefield will be the objective points. Captain Edmonds has the details of the run well in hand.

Members of the club, as well as automobilists generally in Washington, were vitally interested in the election held at Glen Echo, Md. The election was for the purpose of electing two members of the board of aldermen, and the automobilists were interested for the reason that Town Marshal Collins' fate hinged on the result. As two aldermen were elected who are favorable to Collins' retention, that worthy will continue to harass the unwary automobilists on the Conduit road.

#### Rochester Club Is Busy Erecting Signs.

ROCHESTER, N. Y., May 13.—A smoker was held by the Rochester Automobile Club at the Chamber of Commerce. W. O.

Rutherford, of Buffalo, gave a clean-cut talk on the evolution of the automobile tire. The different processes were shown with lantern slides. The vaudeville part of the smoker was exceptionally good, the talent being all local.

The first installment of road signs to be erected by the Rochester club will arrive this week and will be placed just as soon as the roads permit. Another 100 signs will be delivered as soon as finished. This is one of the many good plans of the club projected for the present season.

At a meeting of the board of governors of the club last week it was decided not to hold Orphans' Day on June 12, as proposed, but to postpone it until September, the same as last year, as at that time the schools will be closed.

#### Davenport (Ia.) Automobile Club Elects Officers.

DAVENPORT, IA., May 13.—These officers have been elected for the ensuing year by the Davenport Automobile Club: President, J. N. Hass; vice-president, J. E. Burmeister; secretary, A. H. Ruesam; treasurer, A. E. Rosenthal; directors, B. L. Schmidt, Dr. A. L. Hageboeck and Dr. E. S. Bowman.

The club is making an energetic effort to bring about the formation of a State association of the A. A. A., and a meeting of delegations from various clubs will be held at Davenport before the end of the month.

The club appointed a committee on signs and an appropriation was made for this work. All the prominent crossroads in this and adjoining counties will be properly marked.

There is talk of having a race meet in August, with Barney Oldfield as the leading attraction.

#### Two Province of Quebec Clubs Elect Officers.

MONTREAL, QUE., May 13.—At the third annual meeting of the Automobile Club of Canada the election of officers for the ensuing year resulted as follows: President, Duncan McDonald; vice-president, U. H. Dandurand; directors, F. H. Anson, Wm. Carruthers, A. J. Dawes, Eugene Tarte, Clarence F. Smith, A. Berthiaume; legal adviser, Aime Geoffrion, K.C.; secretary-treasurer, George A. McNamee.

OTTAWA, QUE., May 13.—Prominent owners of automobiles in Ottawa and the surrounding district formed the Ottawa Valley Motor Car Association. The officers elected were: President, J. de St. Denis Lemoine; vice-president, Lieut.-Colonel Hurdman; secretary-treasurer, S. T. Willis; executive, Messrs. Lemoine, C. Jackson Booth, H. B. Cassils, C. H. Pennock, L. T. Wilson, Lieut.-Col. Hurdman and S. T. Willis.

#### More Cars Needed for New York Orphans.

NEW YORK, May 13.—S. A. Miles, chairman of the committee in charge of the Orphans' Day affair of the New York Motor Club, to be held June 12, says that not half enough cars have been secured for that praiseworthy occasion, and he calls upon every automobilist to donate his car for that single day. It will mean a great deal of pleasure for the children, and it would be a shame on New York automobilists if there should be an insufficient number of cars for the orphans. It is felt that no automobilist can afford to miss the opportunity to donate a single day's use of his car for such a laudable affair.

#### A. C. A. Warned of Westchester County Speed Traps.

NEW YORK CITY, May 14.—The bureau of tours of the Automobile Club of America has issued a warning to members to be on the watch for speed traps while traveling through Westchester county. The places where traps are in operation at present are the village of Irvington on the Albany post road, Briar Cliff, both ends of the village of Elmsford on the Saw Mill river road, Scarsdale on the White Plains road, on the Shore road into and out of New Rochelle, as well as on North street leading from that village to Tuckahoe and White Plains.





NEWSPAPER delivery men and belated revellers of the Great White Way were alike indifferent to the silent passage of the powerful, low-hung racing monster that slipped down towards the ferry in the tow of an automobile in the gray light of a dawning Sabbath morn. It was the new Christie racer bound for Long Island, where its im-

prisoned members would be let loose and its harsh roar of defiance heard for the first time.

"Is that one of them there racing machines?" queried an angler who must have been crazy to prefer the raw air of a chilly May morning to a snug bed. There is no time for a reply; the touring car has responded to the first invitation of the crank, and is rushing through Long Island City with the racer in its rear dancing over the rough cobblestones that might have been transplanted from a Belgian village of old acquaintance.

Now we are on the macadam, Long Island City, the East River shipping and Blackwell unfinished bridge are in the rear, and a wide stretch of deserted road lies temptingly ahead. Christie has let in his clutch, as is indicated by a momentary slackening of speed of the automobile tug. But there is no responding roar. There is a crack, then silence, another crack, and again silence, the top of the rise being reached without any genuine indication that the sluggish racer was going to break into activity. There was a wayside stop and a consultation among the racing team as to the cause of the unresponsiveness of the monster. Try the coil. Down under the radiator dived Strang, and a steady electric buzz indicated that he was testing the ignition. All right here. Must be the carbureter. It is a cold morning and she is getting too much air. Now we are all right.

"Give her a push, boys," cried Christie, for the touring machine had in the meantime been cast off. Four pairs of willing hands were laid on the machine, and before ten yards have been covered a canonade burst upon the stillness of the morning air, a cloud of blue smoke belched from the open exhausts, and a quantity of dust was flung into our faces as the Grand Prix competitor left us in satisfied admiration.

It is a strenuous game, the tuning up of a machine that will have to try its mettle with the best of France, Germany, Italy, Belgium and Britain. All aboard, two on the front seats, one on the running board, and Heinz, of coil fame but minus the spark, in glorious solitude on the casks of gasoline that fill the tonneau. 'Round a bend in the road the racer had disappeared, the last view of her being obtained as Strang was tossed up into the air by what the American has discovered to be a "thank-you-marm." We felt it, too, but held tight to the dashboard, while the passenger grabbed the sides of the tonneau as his cases of gasoline rolled about. It is manifestly unfair to expect a "40" with four passengers and a cargo of gasoline and tools to keep on the heels of a "130" in racing rig. But in a quarter of an hour we were up with her again, standing by the roadside for carbureter adjustments. Running a racing motor on a testing block and running the same motor under ordinary road conditions are two entirely different matters, as was soon proved, for the motor, which had behaved like a well regulated watch in the shop was now as variable as a weather cock. Half a dozen times she was pushed off, run for a mile or two, stopped, adjusted and started again. Meanwhile the touring freight car was following in the rear, stopping when the leader stopped and keeping pace with the object of interest about as successfully as an overfed bull dog with a fast team. It is exhilarating exercise.

By the roadside the racer was drawn up again, the hood removed, and the order given to tape all the joints on the intake pipes. There is the trouble; the morning is cold, and the engine is sucking in more air than is good for her health. Calk up all slightly defective joints and there will be a mixture more likely to agree with her fastidious stomach. A six-cylinder Fiat, a bare chassis with a temporary seat for the driver only, also out for a testing run, came silently alongside and passed the usual morning salutations. "No, don't want any help, thanks; just tuning her up," and the Italian slips silently away.

All ready again, a good push, a roar as of Gatling guns, and he is off. He is missing; no, he is firing well now; he is off; what a bump; wonder if the rear axle touched. See his dust a mile down the road; he is round the monument; the dust is rising up behind it now. There is nothing more to be seen. All this has passed in a fraction of the time it takes to tell it, and before the lady in the nearby cottage has got her disheveled head out of the window there is nothing more noisy in view than a modest "40" touring car.

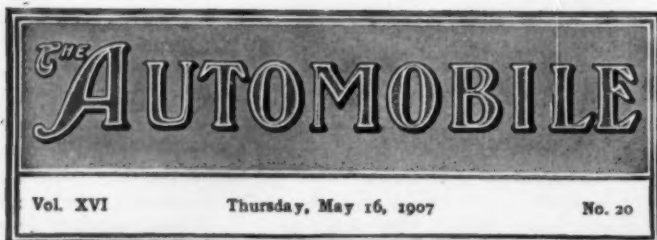
Now a long, hard chase began. A straight stretch of a couple of miles, along which she flew like a thing of life, the cold wind cutting your face, and your benumbed fingers instinctively groping their way to the pockets, while you hold on to the foot-board with your heels and form a wedge against the dash and the front seats with your elbows. Now we have struck the old Vanderbilt course, as is evidenced by the remains of an advertising display which even a rigorous winter has failed to efface. Five miles, ten, fifteen, twenty, and still we are running the one-sided match. Through Mineola, past Krug's, as quiet and deserted as the desert, and still on. There she is down by the road side, with Christie and Strang working on the engine. It is only a plug that needs changing, and a further slight adjustment to the carbureter. Another push off and a complete run around the exact Vanderbilt course of last year is commenced. It is still too early for the police to be abroad, and even if they were they could not possibly catch a Grand Prix racer.

Nine o'clock has brought a wolf's appetite, but with it there is no respite of the wild chase. Just when the road was becoming alive with the first arrivals of Sunday tourists out from New York, the racer was come up with quietly reposing under the shade of the trees. A disconcerting tap had been heard in one of the cylinders, and in order that the weakness, whatever it may be, should not develop into anything serious, the monster was closed down, and awaited the arrival of the touring car. Again the tow rope was passed and a course laid for the shed which served as headquarters in the last international struggle on Long Island for the coveted Vanderbilt Cup.

In company with a reaper the racer was stabled, cylinder dismounted, the groan investigated, and adjustments made ready for the next day's run. Only when all was completed was the crew allowed a rest from their strenuous labors. It is impossible to let loose such a speedy monster during the day; she must lie idle until another dawn. For a week the testing process will be gone through until all minor defects have been eliminated and the American champion is fit to take its position between Leblon and Jenatz.



MAKING A WAYSIDE ADJUSTMENT.



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### Absurdity of Barring Gasoline Autos from Piers.

It would appear at first sight that in this, the year of our Lord, one thousand nine hundred and seven, most of the hazy notions regarding the automobile would have been dispelled. It was all well enough to suspect it of being an infernal machine that might blow up at any moment, spreading destruction in its path, before the facts had become matters of common, every-day knowledge—such a view did not appear entirely unreasonable several years ago, for the automobile of the opening years of the century was more or less an unknown quantity, even to those most familiar with it. But, as already remarked, that was several years ago, and this is an age in which things progress rapidly.

This anent the refusal of certain of the steamship lines entering this port to permit trucks of the gasoline-driven type to carry freight on or off their piers, or, for that matter, to enter them at all, on the ground that it would be detrimental to their insurance interests to do so. It seems rather inconsistent on the face of it that the same companies should have no objection to a horse-drawn truck bringing dynamite, vitriol, gunpowder, or other extremely dangerous substances on to a dock, as is commonly the case on freight piers, and yet place the ban on a mechanically-moved vehicle loaded with flour or something else equally innocuous, merely because it has a few gallons of gasoline aboard. Not that gasoline trucks always carry harmless freight any more than their horse-drawn competitors are always carrying the reverse, but it is certainly the height of absurdity to bar a gasoline-driven vehicle from entering a pier upon which there may be stored at the moment hundreds of gallons of sulphuric or nitric acid in glass carboys. There is a long list of dangerous sub-

stances that are permitted on docks preparatory to loading on freight steamers, without objection. Is gasoline in a closed metal tank so much worse than any or all of them?



### Proven Reliability of the Modern Automobile.

Nothing of recent occurrence better exemplifies the high degree of reliability of the up-to-date car than the running of the Targa Florio race through the mountain fastnesses of Sicily a few weeks since. Of the forty-six entrants in that event no less than ten made the 3,000-foot climb and descent over the wildest imaginable roads, covering the 270 odd miles closer to a schedule than many a railroad. These ten competitors finished within little more than half an hour. Of the total number of entrants, no less than twenty-eight completed what must be conceded to be by far the most trying course ever chosen for an event of the kind. Nor is it in the record alone of those that successfully negotiated the thousand and one turns and escaped death on the many declivities, from which a marvelously consistent performance on the part of such a number of cars of different makes becomes so strikingly apparent. Rather is it to be found in the fate of those who succumbed for one reason or other to the wildness of the mountain course which smashed wheels and axles galore, but which, except in a few instances, was not sufficient to discourage the regular performance of the power plants of the many cars entered. As an instance of the causes that combined to eliminate a number of the competitors, though the percentage was no greater than has been the case in far tamer events, one of the entrants lost no less than three of the wheels of his car. To put it in another way, the result of the contest as a whole was equivalent to covering 7,756 miles in 11 hours and 21 minutes by twenty-eight machines, being the elapsed time of the slowest car to finish—a record seldom surpassed by locomotives.



### The American Ma and the European Market.

For a number of years the American automobile manufacturer and designer has been keeping a close watch on his European confrère, anxious to profit by the lessons learned in the hard school of automobile experience. To-day the European is casting apprehensive glances across the Atlantic, wondering when the American peril will be let loose on his shores. Probably the day will come when the American will send automobiles over the Atlantic in sufficient quantities to warrant their figuring in Government reports, but the time is not yet. France, Germany and Italy have had too long a start, and work under too favorable conditions, for the American to seriously contemplate a European invasion, even did the strenuous condition of the home trade allow of the opening of a fresh campaign.

But around the automobile has grown up an accessories trade which, though of only secondary importance in comparison with the trade in the vehicles themselves, is still one of considerable magnitude. Frenchmen, Germans, Italians and Belgians poo-hoo the American machine; the Englishman only wants it so long as it is cheaper than his "all British" article. They are all, however, willing and desirous of making closer acquaintance with American accessories—the thousand and one appliances which are not a part of the car itself, but which are too intimately connected with its successful operation to be neglected. There is a labor-saving spirit in this country which Europe is only imperfectly acquainted with, and it is this spirit which has turned the American inventor's abilities towards accessories for the automobile.

A steady stream of private inquiries from prominent French business men has suggested the idea that the American might very advantageously unite his forces and present his best in tools, appliances and accessories for the automobile in the Old World. There is certainly a demand for all these things in Europe, and on a sound business basis such an invasion would meet with more success than some of the past attempts to foist American cars on a French public.



## VANDERBILT CUP RACE IN DOUBT.

October 19 may be the date of the Vanderbilt Cup race, providing adequate and thorough policing of the course may be secured—which means the use of national or State militia in supplementing the employment of many deputy sheriffs.

The Long Island Motor Parkway will not be finished in time for the cup race, and this announcement was definitely made at the Tuesday meeting of the parkway directors, the information causing great disappointment in view of the oft-repeated hope that the parkway—or enough of it sufficient for the race—would be completed by October 1.

Wednesday the executive committee of the A. A. A. Racing Board met at the Fifth avenue headquarters, those present being Chairman Jefferson DeMont Thompson, E. Russell Thomas, R. Lincoln Lippitt, George L. Weiss, Frank G. Webb, S. M. Butler, A. G. Batchelder; technical advisors, E. R. Thomas, of Buffalo, and A. L. Riker, of Bridgeport, Conn., and Secretary Frederick H. Elliott. W. K. Vanderbilt, Jr., had intended to attend, but telephoned at the last moment that he was detained at another important meeting.

### Reluctant to Give Up Race.

Extremely reluctant to give up the idea of the race because of the non-completion of the parkway, the executive committee—which practically means the Vanderbilt Cup Commission—considered other possibilities. It was finally decided that a committee, consisting of Chairman Thompson and Messrs. Pardington, Webb, Butler and Riker, should confer with the authorities of Nassau and Suffolk counties in reference to securing a course in one of these two counties, it being understood that if successful Chairman Thompson would select another committee to investigate the chances of obtaining either Government troops or the State militia for guarding the course. In view of the fact that the big automobile events abroad enlist the aid of the governments of the various countries in which the contests take place, and the affair has a widespread industrial significance, it is thought that a plan may be brought about which will result in the securing of national guardsmen; at least a very strong effort will be made to bring about something of the sort. Failure will mean no race this year.

### Radical Rule Changes Suggested.

In view of a fair probability of a satisfactory arrangement for guarding the course, the committee gave some consideration to race conditions. It was first decided to eliminate the clause which requires that every part of a car and its equipment must be constructed in the country from which it is entered. This means that hereafter it will be up to the maker to secure material and parts from whatever source he may desire.

A radical move was made in deciding to ask the consent of Mr. Vanderbilt to change very materially the deed of gift. It now provides for five entries from a country, but the donor will be asked to consent to a stipulation which shall permit any manufacturer, either in this country or abroad, to enter two cars, thus placing all manufacturers on the same equality and giving them all the same opportunity of competition. The present Grand Prix of France gives every home or foreign maker the option of entering three cars, but it was thought that this might bring too large an entry for the Vanderbilt race, for which, of course, under the new arrangement, there would be no elimination race, all originally accepted entrants to participate.

Mr. Vanderbilt's consent will also be asked to a change of the weight limit. The new weight would be 1,100 kilos, or 2,424 pounds, a substantial increase over the present weight limit of 2,204 pounds.

It is intended to get quick action on the moves for an October 19 race, and something definite will be known inside of the next two or three weeks.

### Work to Begin This Week on Parkway.

Work on the Long Island Parkway will begin probably tomorrow, when the surveyors will start laying out the western

entrance of the parkway at Garden City, from which the first section will begin, and continue to Lake Ronkonkoma. The second section, on which work will be started in the near future, will be on to Riverhead. It is 32 miles from Garden City to Lake Ronkonkoma, and Riverhead is 26 miles from the latter place. It is expected that the first section of the parkway will be completed in November, but possibly the road will not be open to the public until next spring.

## COMMON-SENSE BILL IN CONNECTICUT.

HARTFORD, CONN., May 14.—Connecticut's proposed new automobile bill was favorably reported in the Senate by a unanimous vote of the Committee on Roads, Bridges, and Rivers. The chief provisions of merit refer to the granting of revocable licenses, the fees to be based on the horsepower rating of the car, jail penalties for violations, and the abolition of an arbitrary speed limit, the bill as reported embodying most of the original features of the draft as drawn by Schutz & Edwards of counsel to the Automobile Club of Hartford.

Action is not expected to be taken on the bill until next week, and it is anticipated that there will be a general onslaught on Section 11 of the bill, eliminating the speed limit, though many members are committed to its support, believing that it is the only scientific method of dealing with the speed question.

The penalties for violations are set forth in Sections 18 and 19 and provide a maximum fine of \$200 and thirty days imprisonment, or both, for first offenses, and a \$500 fine and sixty days in jail for any subsequent offense, Section 18 also providing for the endorsement of the conviction on the driver's license. The fees, which are to be used for highway and maintenance purposes, are \$2 for registration in the case of a vehicle of less than 20 horsepower and \$5 over that figure, the highest numeral of a double rating always being accepted. The power of revoking licenses is vested in the Highway Commissioner and is very broad, for "upon three days' notice in writing he may revoke a license for any cause that he may deem sufficient," appeals from his decisions lying to the Superior Court. The right to pass local ordinances, except for racing purposes, is taken away and in other respects the bill is of practically the same character as existing legislation in other States, except that the period for which a foreign license shall be good has been restricted to ten consecutive days, instead of fifteen, and cars are forbidden to carry more than two numbers.

"I feel certain that at least a good fight can be made for the bill," said Walter S. Schutz of the Hartford Automobile Club, in commenting on the matter.

## MORGAN SAYS FLORIDA WILL HAVE ROADS.

W. J. Morgan, the well-known promoter of beach race meets and mountain climbs, and lately prominent in good roads agitation, has just returned to New York City from a winter's absence in the South. Among other things, he has the following to say:

"Five years ago, when I went to Florida first to look into the beach proposition for racing, Jacksonville had about one dozen automobiles, and about one-half of them in running order. A recent canvass showed nearly 400 automobiles in Jacksonville. Considering that there have been few roads that the Florida driver could use in the past, the present number of cars only goes to show what may be expected for automobiling in Florida when the present good roads crusade bears anything like a good crop. It is safe to say that there are 1,000 automobiles in the State, but of course that number is vastly increased in winter."

Mr. Morgan says that the manner of conducting future meets on the Ormond-Daytona beach is somewhat undecided at the present time. When the St. John's canal is cut through between St. Augustine and the St. John's river, at Jacksonville, a continuous water trip can then be had from the north to the most southerly point of the United States, Key West. The residents at the latter place want a motor boat meet next winter.

## NEWS OF THE GREAT A. A. A. TOUR.

Revised rules for the A. A. A. tour have been issued, which contain the conditions for the Hower Trophy contest and the penalization schedule for it, as well as a new example of the working of the rules for the Glidden Trophy, which makes it clear what is to be done when a car is disqualified or discontinued for any reason.

The new rules declare the Hower Trophy to be a prize for the entrant of a runabout who has the greatest number of points to his credit at the end of the contest. Each runabout will set out with a total credit of 1,000 points, and penalties will be deducted



THE FRANK B. HOWER TROPHY.

from this total as follows: For each minute, or fraction thereof, in excess of two minutes' tardiness at controls, 1 point; for each dollar, or fraction thereof, in value of parts used, for repairs, as per manufacturer's price list, 1 point. The Hower Trophy is not a perpetual prize, but will become the property of the entrant who wins it this year. The trophy is now being exhibited in New York in the window of the American Locomotive Automobile Company, 1886 Broadway.

According to the new example given, it will not be possible for a car that has gone wrong to save its team from losing points by withdrawing instead of continuing. The example cited says: "Any car which may for any reason discontinue, shall, in addition to previous penalties, be penalized the total number of points

with which it was credited at the start."

The Pierce-Arrow pathfinder, which set out from Cleveland to survey the route on May 7, stopped at Amherst, near Elyria, because of bad weather and waited there till Thursday. The work is now going forward and Dai Lewis, secretary of the A. A. A. Touring Board, who is with the pathfinder car, has wired back that satisfactory hotel and garage arrangements have been completed at Toledo, which is to be the first night's stop on July 10, after a day's run of 120 miles from Cleveland.

Entry blanks for the tour and the contests are now ready and may be had from Chairman F. B. Hower, 760 Main street, Buffalo; from Secretary F. H. Elliott, of the A. A. A., at 439 Fifth avenue, or from Arthur N. Jervis, 29 West Forty-second street, New York.

Herewith is a list, giving the complete details of the twenty entries received to date. Eighteen of them will compete for the Glidden Trophy. At this time last year the first entry had not yet been received:

Car No.	Entrant.	Club.	Car.	Glidden Contestant.
1	N. H. Van Sicklen	Chicago A. C.	40-45 Apperson	Yes
2	K. R. Otis	Cleveland A. C.	65 Pierce-Arrow	Yes
3	R. D. Garden	New York M. C.	45 Pierce-Arrow	Yes
4	Maxwell-Briscoe Co.	West'ter M. C.	36-40 Maxwell	No
5	A. L. Kull	New York M. C.	24 Dragon	Yes
6	T. J. Clark	Chicago A. C.	30 Packard	Yes
7	C. A. Coey	Chicago A. C.	60 Thomas Flyer	Yes
8	Charles E. Finlay	A. A. C. N. J.	60 Pierce-Arrow	Yes
9	Geo. S. Salsman	A. C. of Buffalo	60 Thomas Flyer	Yes
10	The Dragon Auto Co.		24 Dragon	Yes
11	M. Hollowell	A. C. of Buffalo	60 Thomas Flyer	Yes
13	Geo. M. Davis	A. C. of Buffalo	60 Thomas Flyer	No
14	Philip S. Flinn	Pittsburg A. C.	40-45 Pierce-Arrow	Yes
15	H. P. Branstetter		24 Dragon	Yes
16	Orrel A. Parker	A. C. of America	45 Royal Tourist	Yes
20	John Kane Mills	Quaker C. M. C.	24 Dragon	Yes

## OPTIMISTIC ABOUT FEDERAL LAW.

In his report at the recent meeting of the executive committee of the A. A. A., Chairman Charles T. Terry had the following to say on National and State automobile legislation:

**Federal Motor Vehicle Law.**—The chairman of the Legislative Board has had many encouraging communications, not only from other members of the board, but from other lawyers located in various parts of the country, and versed in automobile legal matters, commending both the campaign which the American Automobile Association is waging to secure the enactment of such a statute, but also approving in detail the specific provisions of the statute which the Association has already had introduced in Congress. It is a noteworthy fact that, notwithstanding the wide distribution of copies of the statute, not a single serious objection has been made to any of its provisions, and therefore the proposed statute will go before the Judiciary Committee of the House of Representatives and be favorably reported before the House itself without a dissenting voice, as far as we are able to learn.

May we suggest here that a communication be sent forth from the headquarters of this Association, forthwith, to each of the State associations which are members of this body, and likewise to every other member of the Association, urging them to immediately see to it that the congressmen of each State are made familiar with the purpose and the provisions of this bill, their approval of it secured, and their interest in its passage so aroused as to make it certain that such congressmen will not only vote for it when it comes up for vote, but will watch it while it is before the committee, urge favorable reports upon it by such committee and in general aid in the speedy progress of the bill through both Houses of Congress, and its speedy signing by the President?

**State Legislation.**—At the outset of the discussion of this branch of our report, let us say that the American Automobile Association has great cause for rejoicing over the present situation of State legislation, but more particularly over the general atmosphere and sentiment regarding such legislation throughout the country. It is absolutely certain that, largely through the very active and aggressive policy pursued by the President and the Executive Committee of this Association, the dissemination of its ideas regarding reasonableness and justice in the provisions of State motor vehicle laws, and the full explanations and reasons of such policy, frequently and intelligently declared, the sentiment of the public generally and the representatives of the public in legislatures assembled, specifically has changed from that of more or less active hostility to that of an appreciative, sympathetic and intelligent friendliness. The point here, put in a word, is that there is a very widespread and deep-seated conviction on the part of the public and legislators that, not only are the users of motor vehicles entitled to be relieved of many of the harsh and burdensome restrictions which have heretofore characterized statutes in that regard, but that fairness to automobilists on the one hand and protection to other users of the highways on the other, require that State motor vehicle laws should be: first, be reduced to a very few simple provisions, differing only in slight respects from the laws regulating other vehicles using the highways; and, second, made uniform in respect to these provisions throughout the United States.

## ONLY 29 FOR THE TOURIST TROPHY.

LONDON, May 3.—The close of the entry lists for the Isle of Man races has shown a total which does not reach the figure of either of the previous years. Certainly this lack of competitors was hardly expected and would seem to indicate either that the body of manufacturers and importers over here are not convinced of the advantages accruing from automobile racing or else that the regulations are too stringent and bar out the stock car. Even the thirty-one total for the Tourist Trophy race has been reduced to twenty-nine by a couple of withdrawals during the past week. Neither Italy nor America is represented this time; otherwise the list is sufficiently international in character to rank the race among the big events of the year.

At the last moment it has been decided to combine the Tourist Trophy with the Heavy Touring Car race by running both events off Wednesday, May 29. Sixteen entries have been made for this latter race, in which the fuel limitation principle has been adopted, with the additional speed deterrent of large wooden wind-screens behind the driver.

The autocycle race on the Thursday is a new feature which is proving of general interest in the world of the two-wheelers. Twenty-three entries have already been booked.



**SMITH & MABLEY WERE UNABLE TO GET CARS.**

It came somewhat as a surprise to New York's automobile row to learn, on Monday last, that the corporation of Smith & Mabley, long well known through its connection with the business of selling imported cars here, had been declared an involuntary bankrupt by Justice Hough in the U. S. District Court, Postmaster William R. Willcox being appointed receiver to take charge of the assets, with authority to continue the business for two weeks from date. While the claims set forth by the petitioning creditors are merely nominal in amount, only totalling \$1,610, represented by \$1,500 for fire insurance, due Thompson Hollister; \$60 for supplies, due the Auto Import Company, and \$50 due the Caleb Printing Company, it is understood that considerable is involved.

In addition to being direct importers of the Panhard, Mercedes and Renault machines soon after first beginning business, the company undertook the manufacture of a machine of its own under the title of the S. & M. Simplex. The inception of the firm dates back several years, and in October, 1903, when it was about the largest interest of the kind in New York City, it was incorporated with \$500,000 capital, Carlton R. Mabley being president and Albert D. Proctor Smith treasurer. The premises then occupied were at the corner of Seventh avenue and Thirty-eighth street, which were finally outgrown in the latter part of 1905, when the business was removed to 1765 Broadway, consisting of a modern garage building especially erected for it, and reputed to be leased at an annual rental of \$40,000. During 1905 the sales of the firm are said to have totalled something like \$1,500,000, but the loss of the direct contracts for the sale of the imported cars mentioned, together with the heavy expenses incurred both at the selling and manufacturing ends, are thought to have contributed to the present difficulty.

Even though it had lost the sole agencies of the cars in question, they were still handled, as well as the Isotta-Fraschini, a well-known Italian car. Action by the creditors was precipitated by the announcement that in future the Simplex machines would be marketed by the Simplex Automobile Company, an organization in which H. M. Broesel and W. C. Whitehead are largely interested, this following as the result of the sale of the plant several weeks ago and the consequent withdrawal of Messrs. Smith and Mabley from what had been the Smith & Mabley Manufacturing Company, and which has just come to light.

"I attribute our present difficulty not so much to the last six months of bad weather and market conditions as to our inability to obtain from the manufacturers sufficient deliveries to keep our selling organization going," said Mr. Mabley.

"Our first setback was the repudiation by the Mercedes Import Company of its contract with us and its withdrawal of our agency for this year. This left us with an inadequate number of high-grade foreign cars to fill the demand of our selling force.

"We hope that some plan of reorganization can be devised by our counsel, J. N. Emley, that will fully protect our creditors and enable us to continue. The greatest difficulty presented in this connection will be that of getting sufficient high grade cars."

It is thought that for some time past the business as a whole has been run at a loss, the expenses being in excess of the profits. Assets are reported as totalling \$50,000 to \$75,000, the creditors being represented by James, Schell & Elkus.

**CONDITION OF BANKRUPT NAPIER COMPANY.**

BOSTON, MASS., May 13.—In conformity to a creditors' petition, the Napier Motor Company of America has filed a schedule of its assets and liabilities at the United States District Court. The company owes \$156,645, of which \$52,812 is secured. The principal claims are for three notes, one held by the Commercial National Bank for \$20,000, one by the National Union Bank for \$25,000, and one by the International Trust Company for \$20,000. The Eliot National Bank held a claim for \$47,812, secured by bills of sale of machinery and merchandise.

**A. M. C. M. A. TO CONFER WITH UNDERWRITERS.**

As the result of the unjust discrimination of many of the steamship lines sailing from this port in barring the gasoline-driven commercial vehicle from their piers, the American Motor Car Manufacturers' Association, which numbers many builders of commercial vehicles among its members, is taking energetic steps to improve matters and will request a conference with the Board of Fire Underwriters, as the lines in question, such as the Old Dominion, Clyde, and Ocean Steamship Companies and the New England Navigation Company, place their objections solely on the ground that the insurance interests decline to allow them to take the risk. In furthering its investigation of the matter, the freight and transportation committee of the association has communicated with its agent abroad, A. E. Schwartz, the Paris representative, who states that the insurance companies there have never raised any objection to the use of gasoline trucks on piers. The Dock Department of the City of New York has let it be known that it takes no stand on either side of the question, so that the matter of insurance is the sole hitch.

The proposed hearing before the Board of Fire Underwriters will be held with a view to establishing the absolute safety of commercial trucks of the gasoline-driven type and to show the injustice of barring them from the New York City docks. A. L. McMurtry, of the New York Motor Car Company, suggests that builders of commercial vehicles pay more attention to the limit of head room on the ferry boats in the case of vehicles intended for service about New York.

**BIG ADDITION TO DETROIT'S STEEL PLANTS.**

DETROIT, May 13.—An important move has been made by the Detroit Steel Products Company in the purchase of twenty acres of land on the M. C. R. R. belt line at Chene street and the boulevard, at Detroit. The property, which for years has been used for market gardening purposes, will be converted into sites for several factories, among the number being an immense new plant for the Detroit Steel Products Company. The tract of land is nearly half a mile in length and one of the first improvements to be made will be the laying of more than 2,000 feet of double spur tracks into the factory grounds running from the Michigan Central belt line over to Chene street. This move on the part of the Steel Products Company has become necessary owing to increased business. Their plans for the new plant, besides having the largely increased capacity for the manufacture of automobile springs and the Harvey friction draft springs for railroad cars, will include drop forgings of the very highest grade.

**COST OF FUELS FOR RUNNING MOTORS.**

Nearly a thousand requests have been received for copies on fuels for explosive motors, in complete answer to questions asked the Maxwell Briscoe Motor Company regarding the recent tests of their automobiles with gasoline, kerosene and alcohol. The report is exhaustive, and many authorities on gas engines and mechanics are quoted.

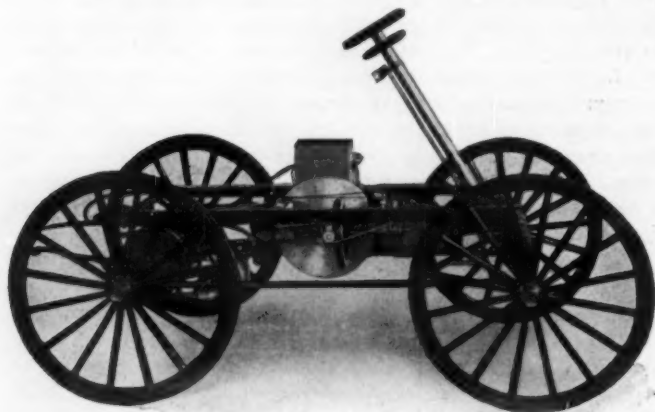
In brief, the case and verdict, so to say, as well as costs, follow: Gasoline, per car mile, 1.9 cents; kerosene, 1.7 cents; alcohol, 6 cents. Cost of fuel per ton mile: Gasoline, 1.69 cents; kerosene, 1.39 cents; alcohol, 4.48 cents. Miles per gallon: Gasoline, 10.1; kerosene, 7.4; alcohol, 6.13.

**IMPORTERS INVITED TO PALACE SHOW.**

Provision is being made by the Automobile Club of America for an importers' section at their show to be held in the Grand Central Palace in the fall. As the European automobile shows are to be held this year a little earlier than usual, it is expected that importers will be able to secure duplicates of the show chassis and place them on exhibition in the Grand Central Palace, thus securing some of the early business.

### FEATURES OF THE FEDERAL RUNABOUT.

In designing a light, handy car for the use of the business and professional man in both city and country, the builders of the Federal runabout have aimed at simplicity above all things, combining with this prime essential the equally important features of maximum power with low weight, speed and durability. The power plant consists of a horizontal opposed two-cylinder, air-cooled, two-cycle motor, which, though located under the body, is



SIMPLICITY OF THE FEDERAL TWO-CYCLE CHASSIS.

placed in a very accessible position owing to the use of 36-inch road wheels, which also give the clearance necessary for rural use. Parallel flanges cast integral with the cylinders are provided for cooling the latter, while the cylinder heads have eleven 1-inch vertical flanges cast on them. Cooling is further facilitated by the operation of the motor in which the cool mixture is first drawn into the crankcase and there compressed by the piston, thus coming into contact with the inside of the latter. From the crankcase it is sent through a by pass and a valve in the cylinder head to the combustion chamber. A unique feature of the two-cycle engine is the use of a mechanically-operated inlet valve.

The running gear with its 36-inch wheels and 1 1/4-inch side wire Firestone tires is somewhat of a modification of the American buggy and the standard automobile chassis, its most noticeable features being the transverse scroll type spring in front, so long associated with the former, with long semi-elliptics for the rear suspension. Simplicity is further attained by the use of a friction type of transmission. This consists of the 18-inch fly-wheel, which is faced with a 3-16 inch disk of aluminum. Contacting with this at right angles and adapted to be slid across its face by means of a hand lever is a 12-inch friction wheel carrying a facing of compressed tarboard on its periphery. This friction wheel slides on the inner end of the propeller shaft, constituting the final drive. This draft is fitted with two universal joints and carries a double pinion at its rear end, which is constantly in mesh with the bevel pinion of the differential on the rear axle. The brakes are also carried in the differential housing and their application releases the friction drive. The Federal runabout is built and marketed by the Federal Automobile Company, Fortieth street and Wentworth avenue, Chicago.

### AUSTIN FACTORY TO MOVE TO DETROIT.

DETROIT, MICH., May 6.—Announcement is made that the Austin Automobile Company, of Grand Rapids, will soon move to this city. James E. Austin, senior member of the firm, declares Detroit has superior shipping facilities, and that it is a better market for the class of labor required. The Austin Company's experience with the Grand Rapids police is said to be largely responsible for the change, testers having been constantly harassed both in the city and out in the suburbs.

### MITCHELL PREPARES FOR CALIFORNIA JUBILEE.

RACINE, WIS., May 13.—The annual jubilee of the Mitchell Motor Car Company, to consist of a 225 miles tour and speed and hill-climbing contests, promises to be an affair of considerable magnitude. The dates are June 7 and 8. On the first day there will be racing and hill-climbing events on San Jose's famous Elm Rock Hill, so deceptive on account of its mountain background. The second day will be devoted to a run to Del Monte and Monterey, the special features of which will be climbing the San Juan mountain, with the worst grade between San Francisco and Los Angeles, and a seventeen mile drive to Belmont, a spot where the horse is not allowed, and justly famous as the most beautiful drive in the world. Luncheon and dinner will be taken at the hotel there. The length of the run, as outlined, is about two hundred and twenty-five miles, but it will not prove too long, owing to the perfection of the road, it being possible almost the whole distance to drive two machines and even three abreast. G. V. Rogers, secretary of the company, and Sales Manager J. W. Gilson will leave here shortly for San Jose, Cal.

### R. F. D. AUTOS USED AT JAMESTOWN.

During June and July, 1906, the United States Post Office Department conducted some comprehensive tests of the Orient friction drive buckboard, as adapted to the rural free delivery service, two cars being employed in the tests over some of the worst routes that could be found in Maryland, Virginia and the District of Columbia. The government had an official in charge of the test as an observer, and his report was of such a satisfactory nature that the prohibition was removed against R.F.D. carriers using motor vehicles on their routes, it having been previously considered that they were unreliable and could not serve a route with regularity. As a result the Post Office Department has since taken a great deal of interest in motor vehicles, and has closely studied their adaptability for service in the various departments. Of their own initiative they have requested of the Waltham Manufacturing Company the loan of a single-cylinder buckboard runabout, such as they used in the tests, for their own exhibit at the Jamestown Ter-Centennial Exhibition at Norfolk, Virginia. In the exhibition are shown various types of vehicles and modes of conveyance which have been used in the R.F.D. service since its inauguration, the Buckboard taking a prominent position as the ideal method of delivering mail on country roads. The Department has also ordered two 8-horsepower service cars built up into the regulation screened wagons



ORIENT RUNABOUT AS EMPLOYED BY UNCLE SAM.

used in the cities for the conveyance of mail pouches, to be used at the Exhibition Post Office in the Exposition. One car is required to make nine round trips per day between the Exhibition Post Office and the Norfolk Post Office, representing a distance of about 90 miles a day. The second car operates between the Exhibition Post Office and the steamship docks at Pine Beach, in addition to distributing special pouches among the different buildings in the grounds, covering 50 miles a day.

William A. Barr, assistant representative of the Post Office Department at the Jamestown Exposition, is in charge of the automobile service. Both cars will participate in the test of automobiles adapted for mail service, to be conducted during the summer months under the supervision of Gen. Fred Grant.





START OF THE RUN FOR CRIPPLED CHILDREN.

**FORERUNNER OF ORPHANS' DAY FOR CRIPPLES.**

Owing to the impossibility of the crippled children participating in the joys of the Orphans' Day of the New York Motor Club, June 12, a special outing was arranged for them on Monday last by the officers of the Home for Crippled Children, aided by Wyckoff, Church & Partridge. Fifteen Stearns touring cars were in line, carrying some fifty children, with an attendant in each car, most of these being lady volunteers. The trip was from Fifty-seventh street and Broadway to the Crescent Athletic Club House at Bay Ridge for lunch, thence to Luna Park, the wonders of which were thrown open to the party. Very few of the children had ever seen the inside of an automobile before, so that there was nothing lacking to complete their happiness. The line was headed by Edgar Gibbs Murphy's Stearns, other cars of the same make being loaned by G. Austin Morrison, Herbert Rose, G. S. Floyd-Jones, Mr. Chesbro, Mrs. Toole, Mr. Hawkesworth, Mrs. Morris, Mr. Willetts, Mr. Kane, Mr. Stanton, Mr. Church, E. S. Partridge and Mr. Wyckoff, besides the firm's demonstrating car, under whose auspices the run was held.

**CHAUFFEURS' LEAGUE AGAINST INEFFICIENTS.**

An endeavor is being made by the National Federation of Chauffeurs' Leagues to set a high standard. James B. South, president of the National Federation, writing to the secretary of the Bay State Professional Chauffeurs' Association, says:

"I do not believe a young man can obtain enough knowledge from the six or seven week school to become at all competent to take charge of an automobile. One might as well work in a livery stable six or eight weeks and then apply to a Kentucky horseman, stating that he is competent to attend to thoroughbreds. In fact he cannot master the technicalities of an auto in that time. The whole plan and idea is preposterous and absurd. A chauffeur is a man who has worked in the factory shops and garages and then, after serving his time, has won the name and reputation of a chauffeur. In behalf of the National Federation of Chauffeurs' League I will state that we will not grant charters to leagues and clubs composed of so-called school-made chauffeurs. They are not chauffeurs, and their certificates cannot be recognized by us. I hope you will at your next meeting pass resolutions to that effect. The public and the owner should be informed as to what constitutes a chauffeur. In my estimation no greater mistake could be made by an owner than to employ that class to take charge of his investment. I further believe that no greater calamity can befall the products of the automobile industry than to have them fall into the hands of these inexperienced misnomers."

**Memphis, Tenn.**—On May 15 the Jerome P. Parker Company moved into its new five-story building especially arranged for its business at 181-183 Madison street. The building contains 40,000 square feet floor space, and is in the very heart of the city.

**LAHM WILL DEFEND THE BALLOON TROPHY.**

PARIS, May 5.—News from the military school at Saumur has just been received that Lieutenant Frank P. Lahm, winner of the Gordon Bennett balloon trophy, is recovering from his attack of typhoid fever and that his complete restoration to health is only a matter of a few weeks. It is thus practically certain that Lieutenant Lahm will form one of the American team in the race from St. Louis, as originally intended. James Gordon Bennett has forwarded a magnificent gold medal to Lieutenant Lahm commemorative of his victory in last year's contest from Paris.

**Giant and Dwarf Wind Wagons in Balloon Race.**

One of the most interesting of balloon races held in France took place a few days ago from the Aero Club's ground at St. Cloud between the giant balloon *Aigle*, of 4,150 meters, and the midget *Micromégas*, of 400 cubic meters. The one is the largest and the other the smallest balloon in France. In the net of the *Aigle* there were ten passengers, comprising Santos-Dumont, M. Mallet, constructor of the balloon, and other equally well known aeronauts. The tiny *Micromégas* was piloted by Georges Bans, his only living companions being a couple of pigeons. In order that the two balloons might start on equal conditions the *Aigle* was allowed 750 kilos of ballast, the *Micromégas* being given but 75 kilos. For some unexplained reason the big fellow went away with only 400 kilos of his ballast, the small rival having the full charge. It is probably this shortage that caused the defeat of the monster, it coming down near Blois, while the *Micromégas* came to earth fifty kilometers further away, between Poitiers and Limoges. Among the large and representative group of aeronauts who watched the departure of the competitors was Cortland Field Bishop, president of the Aero Club of America.

**Denver, Colo.**—A large automobile garage and repair shop is about to be opened at 1645 Court place, under the direction of John M. Kuykendall.



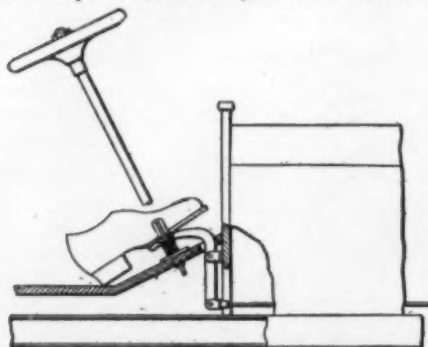
A FORD CAR IN THE LONDON HIPPODROME.

Owing to its lightness in proportion to power and size, the Ford runabout has become a great favorite among "strong men" and other athletes, who earn their livelihood by the performance of sensational lifting and other stunts in the big hippodromes and circuses and on the vaudeville stage. This photograph was taken in the London Hippodrome.

## SOME RESULTS OF INVENTIVE GENIUS.

## Waldon's Relief Pedal Rest.

Where it is necessary to hold the accelerator pedal partially depressed for a length of time fatigue results, and the aim of this invention is to provide a means of relief. A foot or toe-rest is arranged adjacent to the pedal and is adjustable so that it



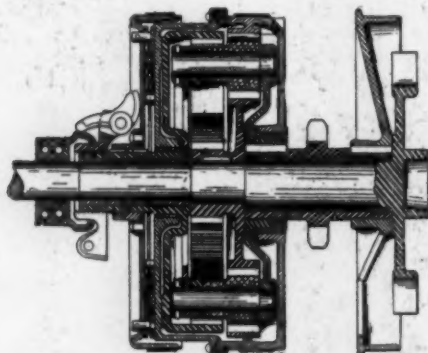
PACKARD ADJUSTABLE ACCELERATOR PEDAL.

may be locked temporarily at different heights. When the foot rests naturally on the foot piece, the pedal will be held at the same height as the foot piece and thus the throttle may be held in any position desired without effort on the part of the driver, or the pedal may be temporarily locked in place by rocking the foot to operate a latch.

The patentee is Sidney D. Waldon, of Detroit, Mich., the patent being assigned to the Packard Motor Car Company.

## Patent on Reo Planetary Gear.

This patent relates to an improvement in a planetary change speed gear. A train of direct gears, including a fulcrum member, is arranged between the driving and the driven members, and a train of reverse gears also including a fulcrum member is similarly arranged, means being provided for permitting and preventing rotation of one or the other of



REO IMPROVEMENT IN PLANETARY GEAR.

the said fulcrum members, and for connecting and disconnecting the fulcrum members. One of these fulcrum members is so shaped as to form a casing for the gears and the other fulcrum.

The patentee is Horace T. Thomas, of Lansing, Mich., the patent being assigned by him to the Reo Motor Car Company.

## Freeman Automatic Carbureter.

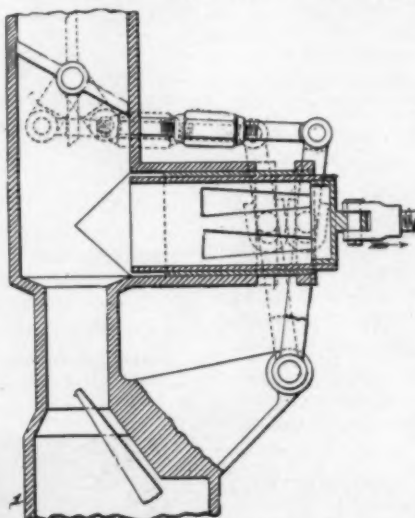
The object of this invention is to provide an improved form of carbureter in which the proportions of the air and fuel may be effectively and automatically

controlled, regardless of the wide range of variation of the load and speed of the engine. The usual throttle valve is provided with an auxiliary air-inlet located between the carbureter and the throttle. An outer valve is arranged in a tubular casing an inner governor-controlled valve being provided in addition.

The patentee is Lowell C. Freeman, Kalamazoo, Mich.

## A New Solid Tire Fastening.

Though equally applicable to solid tires used on all vehicles, this invention relates particularly to those employed on self-propelled vehicles. The object is to provide a method whereby rubber tires may be quickly and securely fastened to wheel rims without the use of tools. It consists in molding the rubber tire direct-



NEW FORM OF AUTOMATIC CARBURETER.

ly on the rim and in vulcanizing the molded tire on to the rim, the process to be so regulated that the portion of the tire adjacent to the rim is vulcanized to a greater degree of hardness. To further secure the tire suitable means adapted to embed themselves in the tire are utilized.

The inventors are Isaac W. Giles, of New Bedford, and Charles W. Tobey, of Fairhaven, Mass.

## The New Brisben Muffler.

The construction of the muffler covered by this invention is such that the gases from the engine, while being exhausted directly into the air, will be so controlled and modified in physical character that the noise incident to the ex-

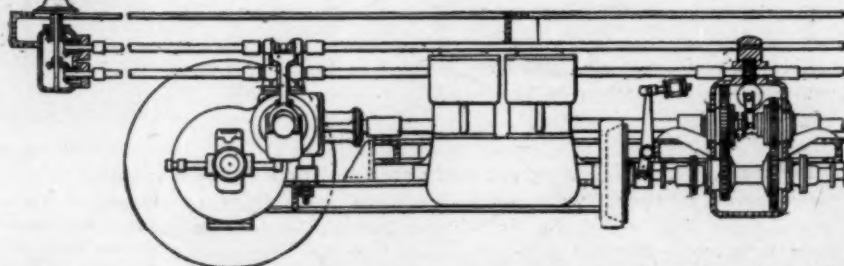
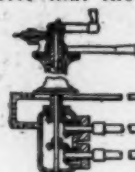
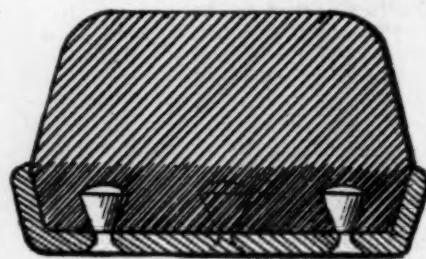


DIAGRAM ILLUSTRATING ARRANGEMENT OF THE ESSENTIALS OF THE MARTIN TRANSMISSION.

haust will be subdued without the imposition of any back pressure on the piston of the engine. The exhaust gases pass through a plurality of pipe sections of successively increasing size, expanding



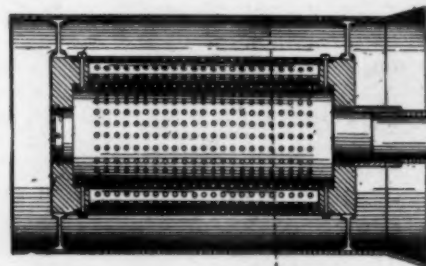
VULCANIZED FASTENING FOR SOLID TIRES.

and losing some of their force. They then pass through a central opening into the inner perforated cylinder, thence to a surrounding cylinder of larger diameter, finally emerging through holes in a hood enclosing the cylinders, being discharged into the open through a current of air passing through the hood. The character of the gases is changed so as to prevent their explosive expansion.

The inventor and patentee is William M. Brisben, of Hackensack, New Jersey.

## Improved Form of Driving Mechanism.

In applying the internal combustion motor to road or railway vehicles, especially where great tractive effort is necessary, it is essential that means be provided for the attainment of a heavy starting torque, as well as a variable



SECTION OF THE NEW BRISBEN MUFFLER.

tractive effort and speed, and a reversal of motion. The above is secured by the mechanism embodied in this invention which consists also in peculiar controlling means utilized and especially adapted to be employed in connection with the invention. The mechanism comprises a combination of engine shafts, driven shafts and a longitudinal shaft for transmitting power to the driven shafts.

The inventor is Percy Martin of London, England, assignor of one-half to Dick, Kerr & Company, Ltd., London.

Specially reported for "The Automobile" by Beeler & Robb, patent attorneys, Baltic Building, Washington, D. C.



## BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

Another recruit to the growing list of six-cylinder car makers is a very prominent Indiana manufacturer, who desires to avoid a premature announcement at this time.

Fred W. Wolf, Jr., 1417 Lakeside place, Chicago, in addition to manufacturing a 2,000-pound delivery wagon, is also agent for the Gaeth and Climax commercial vehicles.

The Atlas Engine Works, Indianapolis, are equipping a large new building for the production of gasoline engines, and it is their expectation to build under contract automobile motors of the four-cylinder type.

The foreign department has just sent to the Toledo, Ohio, factory of the Pope Motor Car Company, makers of Pope-Toledo automobiles, several orders for Pope-Toledo cars for a South American port, with instructions to rush this shipment regardless of cost.

The Northern Automobile Company is about to double the capacity of its plant at Port Huron, Mich., by the erection of two buildings 100x250 feet in size. With its present plant the company is unable to keep pace with the orders coming in from all sections.

The Franklin six-cylinder car, which last summer made a run from San Francisco to New York in fifteen days, and also broke and holds the Chicago-New York record, is now to do service for Stewart Hodges, of Chicago, who will make good use of it during the coming season.

P. M. Hanney, president of the Monarch Motor Car Company, whose factory at Franklin Park, Ill., was totally destroyed last week, announced that the erection of a new fireproof factory will be begun at once. The fire caused a loss of more than \$100,000, covered by only \$20,000 insurance.

The American Brass and Aluminum Works, Fulton and E. Walnut streets, Indianapolis, are new comers in the brass foundry line. A well-equipped foundry has been put up, and special attention is being given to brass, aluminum, phosphor and manganese bronze automobile castings.

Charles Jarrott, a well-known London automobilist, recently sent the following cablegram to London: "Arrived Monte Carlo 7:30 p. m. English time. Thirty-five hours twenty minutes for complete journey. Beat my old record London to Monte Carlo last year and all Monte Carlo to London records made since. Tires wore splendidly." Continental tires were used.

R. M. Owen, of R. M. Owen & Co., New York City, has just returned from an extended western trip among Reo and Premier dealers, and reports trade as being exceptionally brisk with the return of warmer weather. 1902 Reo cars were shipped during the months of March and April. This would make up a solid line of cars over two and one-half miles in length, and is claimed to be the largest March and April shipment made from any single factory in the world.

In the \$200,000 blaze which wiped out the Blanchard Press, on Canal street, New York, the other day, the first edi-

tion, numbering twenty-five hundred copies, of the Correspondence School of Motor Practice, conducted by the Maxwell-Briscoe Motor Company, was entirely destroyed. Under the circumstances, over two thousand subscriptions having been received, steps are being taken to have an extra edition printed and bound for distribution within the next fortnight.

The new form B odometer constructed by the Veeder Manufacturing Company, of Hartford, Conn., the latest model to be offered to the public, has a simplified universal attaching fixture, so that any owner can readily adjust the fitting to his own car. The instrument shows total mileage up to 10,000 miles, also separate distance for each trip, the trip figures being reset to zero before the start without disturbing the totals. A description is expected shortly of the Veeder tachometer, which has been used in laboratories for many years, and, as adapted to the automobile, promises a great surprise.

R. A. Hammond, president of the Deriving Coal Company, of Chicago, and R. E. Jackson, vice-president of the Rock Island and Pacific Railroad, with their Columbia cars, participated in the Industrial Expansion trip down the Mississippi river a few days ago. The party left Chicago by train, shipping their motor cars to Joppa, Ill., where their Pullman coaches and automobiles were loaded upon a float and the trip continued down the river in tow of a steamer. Stops were made at Memphis, where an automobile run was made of the city and surrounding country, the next stop being Vicksburg, followed by a halt at Natchez, where the Columbia cars were the only ones to successfully negotiate the very bad hills, which were covered with about three inches of wet clay. Baton Rouge was the next stop, and the trip was terminated at New Orleans. Each city along the route was visited under flood conditions.

## RECENT BUSINESS CHANGES.

The automobile storage and repair business heretofore conducted by Graham & Goodman, in West Ninety-third street, New York City, has been sold to Frederick F. Goodman, Inc.

The Nyberg Automobile Company, of Chicago, formerly located at Thirtieth street and Michigan avenue, has opened its new quarters at 2437 Michigan avenue. The new building has been especially constructed for repair and garage service.

## NEW AGENCIES ESTABLISHED.

F. D. Putnam, 827 Elm street, New Haven, Conn., has been appointed agent for the Rainier in that section.

The Cincinnati Automobile Company has refitted its showrooms and garage at 215 East Fifth street, and added the Pope-Hartford to its line of agencies.

The Northwestern Automobile Company, of St. Paul, Minn., agents for Ford and Reo cars, has opened a new branch house at 354 Market street, that city, under the management of George Wood.

A branch house is about to be established in Seattle, Wash., by the Winton Motor Carriage Company, of Cleveland, in charge of George W. Miller as resident manager. The new branch will be located in the old Caducean skating rink, and the work of remodeling the building is now under way.

The Supplementary Spiral Spring Company's sales department is now located at 1780-1782 Broadway, near Fifty-ninth street subway station. Possessing the advantages of a fully-equipped factory in New York City, the company can furnish supplementary springs without delay for any make of car or spring.

The Ford Motor Company has invaded the financial district in New York City, and opened a salesroom on the street floor of the Broad-Exchange Building, Wall street, near the Broad street entrance. A four-cylinder Ford runabout will be kept on exhibition here, and a staff of salesmen and demonstrators will be attached to the Wall street headquarters. Demonstrating cars will be kept in close proximity. The new store will be maintained as a branch of the New York agency, and similar branches are planned for other busy sections of the city, and to supply these branches and insure prompt delivery a warehouse has been leased in Hoboken, where both runabouts and six-cylinder Fords will be kept in stock. The export trade will also be supplied from this warehouse.

## PERSONAL TRADE MENTION.

E. G. Sourbier has bought a large interest in the Marion Motor Car Company, of Indianapolis, and succeeds J. S. Conwell as general manager.

William M. Lewis, last year associated with the Boston agency of the Wayne, has joined the selling force of the New York branch of the Aerocar Company.

G. L. Crook, formerly with Fairbanks, Morse & Co., Beloit, Wis., is now superintendent of the gas engine department of the Atlas Engine Works, Indianapolis.

William F. Murphy, one of the old-time cycling champions, has joined the selling force of the Martini Import Company, 239 West Fiftieth street, New York City.

Emery Spencer, heretofore of Chicago, has been appointed business manager for Wheeler & Schebler, Indianapolis. Mr. Spencer has been connected with several large manufacturing concerns.

F. H. Wheeler, of Wheeler & Schebler, Indianapolis, Ind., accompanied by Mrs. Wheeler and their son, will sail July 16 for Europe, and will make a six weeks' tour by automobile through Great Britain and Ireland and continental Europe.

J. J. Tompkins, formerly of Dayton, O., is now associated with K. Franklin Peterson, Chicago factory representative of the Kinsey Manufacturing Company. Mr. Tompkins is calling on the trade in the interest of the Kinsey oiler, devoting his entire attention to same.

F. M. Hoblitt, who claims the honor of being the pioneer commercial traveler in the automobile business in America, is now in the west establishing Berliet

agencies for the American Locomotive Automobile Company. He will stop at Chicago, Denver and Salt Lake City, but his main objective point is California.

F. A. Seiberling, formerly factory manager of Haynes Automobile Co., has taken an interest in the Apperson Bros. Automobile Co., of Kokomo, Ind., and in addition to factory manager also assumed the duties formerly looked after by C. A. Bruner, who has resigned to give entire attention to his coal business.

T. W. Goodridge, for the past five years general manager of the Studebaker Automobile Company, South Bend, Ind., has resigned in order to take up an independent manufacturing proposition, not unrelated to the automobile industry. He will not leave the Studebaker Company, however, until considerably later in the selling season.

Robert E. Graham, vice-president of the Acme Motor Car Company, of Reading, Pa., is making a tour of the agencies of the company, and visiting the principal western cities with a view of establishing new agencies, and inspecting general conditions of the trade. He will proceed as far as San Francisco and Los Angeles, and be absent about three weeks.

J. E. Doane, for the past five years associated with C. H. Childs & Co., Utica, N. Y., in the automobile and carriage department of that house, is now associated with the H. H. Franklin Manufacturing Company, as local salesman at Syracuse. F. W. Ansley, eastern traveling representative for the Franklin line, who has been seriously ill at his home in Hamilton, Ont., has sufficiently recovered to resume his duties.

Fred P. Brand, general sales manager of the Autocar Company, of Ardmore, Pa., has tendered his resignation. Mr. Brand is one of the best known men in the automobile trade, and was for five years connected with the Locomobile Company of America, after which he was manager of the Apperson branch in Chicago, prior to his connection with the Autocar interests. While he has made no announcements as to his future movements, he will undoubtedly make good connections, his large experience fitting him peculiarly for responsible positions.

#### NEW TRADE PUBLICATIONS.

"Moline" is the title under which is published a catalogue from the Moline Automobile Company, East Moline, Illinois, descriptive of the various models of touring and runabout automobiles produced by that company.

Jump spark coils and plugs are dealt with in the booklet just to hand from the Fischer Special Manufacturing Company, Cincinnati, Ohio. A number of illustrations reveal the internal workings of the firm's coils, and useful hints and descriptions are given in the text.

An artistically produced catalogue of 1907 models of the Craig-Toledo has been sent out by the Craig-Toledo Motor Company, Toledo, Ohio. The feature of the booklet is a series of excellent illustrations and a full-page reproduction in colors of the Craig-Toledo roadster, type 1907.

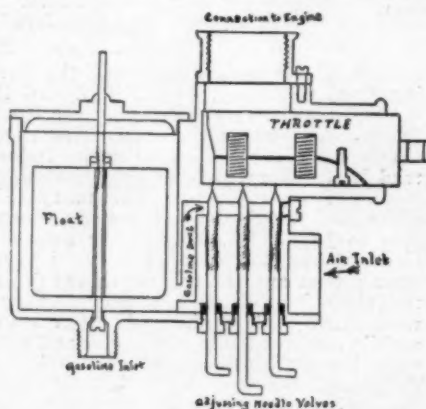
From the Northern Motor Car Company has been received an elegantly produced catalogue dealing with the firm's 1907 models. The value of the booklet lies in the excellent illustrations of complete

cars and various parts of the engine and transmission gearing in section. These illustrations render possible an appreciation of the Northern features though one may not have the opportunity of examining the car first hand.

Users of Thomas machines, and others, will be interested in the small, dainty brochure produced by the E. R. Thomas Motor Company, Buffalo, N. Y., under the title "The Thomas and Its Makers." It contains illustrations and a short biographical sketch of the dozen master minds united at the Thomas factory from various parts of the globe, and responsible for the make-up of that firm's famous automobiles.

#### THE BROOKE CARBURETER.

Believing that the chief fault in the carbureter is to be explained by the fact that no provision whatever is made for increasing the gasoline supply in proportion to the increased air supply as the motor speeds up, the W. R. Deming Machinery Company, Sixteenth and Wal-



SECTIONAL VIEW BROOKE CARBURETER.

nut streets, Kansas City, Mo., have devised the Brooke multiple jet carbureter on which patents have already been allowed. The chief details of this are illustrated by the accompanying sectional illustration. As there shown no less than three independent jets are provided, each with its own needle valve adjustment. One of these jets is always in action and provides a supply of fuel for starting and for running the engine when not under load; as soon as the load is applied and

when running the car along level roads, the second jet comes into action, increasing the fuel supply, while for hill climbing the third one also comes into play when the throttle is wide open. As shown in the cut, the throttle is closed, but one jet then being operative. A compensating valve is set in the throttle and is maintained tight over the three jets by means of two helical springs. For air-cooled cars provision is made for closing the throttle entirely, yet permitting of a start in the usual manner. In the Brooke carbureter, opening the throttle means an increase of both air and gasoline, thus maintaining the mixture always uniform. The patents granted on it are said to be very broad.

#### A PLATINUM SUBSTITUTE.

The Idium Metals Company, of 79 Milk street, Boston, Mass., has produced a substitute for platinum, having a higher temperature coefficient and being non-corrosive. It is claimed for Idium that it is not affected by atmospheric changes and will not oxidize under heat, thereby assuring perfect conductivity at point of contact, giving full benefit of the electric current of the coil. Tests have demonstrated, according to its makers' statement, that Idium does not pit.

#### TOOL AND BATTERY BOX.

To bring order out of the chaos of repair and replacement parts, tools and supplies that usually prevails on the average car, E. B. Jordan, Jr., of 873 Union street, Brooklyn, N. Y., has devised a novel combination tool and battery box, which is not only adapted to carry the greatest amount in the smallest space, but also to keep things easily accessible and perfectly safe. The box, which is of solid construction and waterproof, may be bolted onto the running board and made to serve as a step as well. The convenience of its internal arrangement is strikingly illustrated by the accompanying cut, which shows it open. At the right is a specially designed receptacle for the battery, while the remainder of the space is subdivided into drawers, 13 inches long and varying in depth from 11-4 inches to 21-2 inches, in order to accommodate pieces and tools of different sizes. The door over the drawers and the cover of the battery box are provided with brass hasp hinges and a padlock. The box will be finished in any color to match the car.

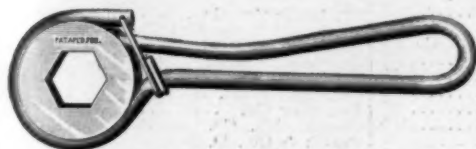


VIEW OF JORDAN COMBINATION TOOL AND BATTERY BOX OPEN.



## INFORMATION FOR AUTO USERS.

**Handy Tire Lug Wrenches.**—Wherever it is impossible to give a wrench a complete turn by reason of obstructing parts, the operation of removing and replacing nuts becomes a tedious one of twice the ordinary duration—the wrench has to be removed and replaced for every half or quarter turn, as the case may be. To obviate this inconvenience, particu-



WALDEN RATCHET AUTO WRENCH.

larly in the case of clincher tire lugs, though it is equally applicable to other uses about the car, the Walden ratchet wrench has been devised. As shown by the illustration, it is light and compact and no adjustments are necessary. Though only shown here with the square opening, it is made in both square and hexagonal openings, ranging from 1-2 to 3-4 in the former case and 1-8 to 3-8 in the latter, the hexagonal wrenches also taking hexagonal cap screws, while the square ones are adapted to set screws as well. The device is manufactured and marketed by the Walden Manufacturing Company, 65 Beacon street, Worcester, Mass.

**Portable Garages.**—With the present high prices of labor and materials it would be difficult to construct a private garage, in the majority of places, for the same cost that a portable building, already set up, can be had. Beside this, prompt deliveries, the ease with which the buildings can be set up and



SPRINGFIELD PORTABLE GARAGE.

the artistic designs in which they are built have combined to make portable buildings very popular with autoists for this purpose. A typical example, recently supplied H. I. Thayer, of Wakefield, Mass., for this purpose by the Springfield Portable Construction Company, Inc., Springfield, Mass., is shown in the accompanying illustration. On the ground it measures 20 by 26 feet and has a hip roof with pagoda dip, which gives an artistic curve at the eaves. The floor is of 7-8-inch hard pine laid on spruce joists, while the sidewalls are of cypress matched novelty siding, representing clapboards outside. They are

laid 21-2 inches to the weather and finished smooth inside. The roof is of selected cypress clapboards lined with Neponset waterproof paper. In addition to the storage room for the car, the house contains two living rooms for the chauffeur. These are lined with half-inch North Carolina center-beaded pine. The windows, which measure 5 feet by 1 foot 10 3-8 inches, are a special Springfield design and are glazed with diamond-shaped panes. The whole is finished with two coats of oil paint and presents a very attractive appearance.

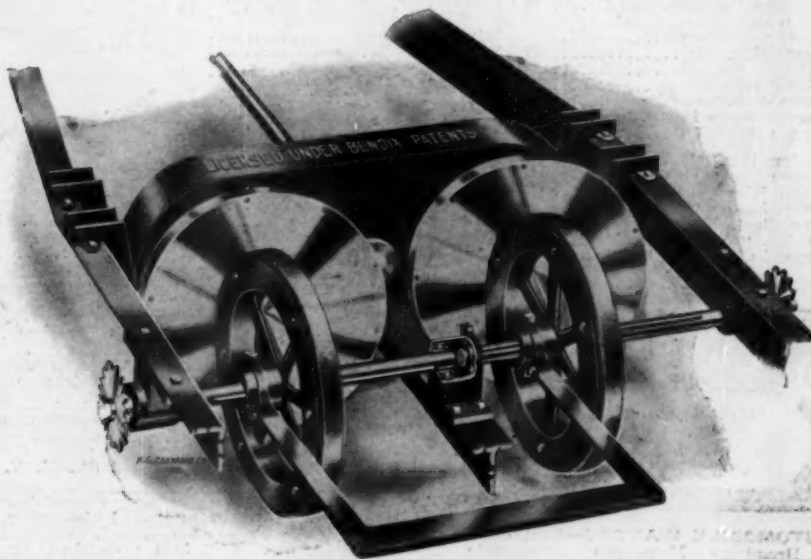
**Auto Brighteners.**—Though every other part of it show the marks of wear and tear or are bespattered with mud and dust, an automobile on which the brass trimmings and lamps are kept shining bright has an air of respectability about it that nothing else can impart. Brass trimmings are purely ornamental and as such must be kept clean—to do this Meyer's Putz Cream, made by the American Metal Polish Company, 89 Winslow avenue, West Somerville, Mass., is needed. It is made not alone to produce a bright polish on metal works, but one that will last, and for this purpose is made of the best of oils; in fact, the enduring finish it imparts shows that it contains no acid or other deleterious substance—in short, it is the chauffeur's friend. In addition to the Putz cream, the same company makes Silva Putz silver polish, Red Cross Silva powder, Red Cross bar polish and Meyer's Putz liquid.



**Bendix Twin Friction Transmission.**—For the light runabout type of car, particularly of the class designed for rural use and which has popularly come to be known the country over as the buggy-about, the friction type of transmission would appear to be ideal. Naturally, it

is something that its limitations and is not applicable to every form of service with unvarying satisfaction, and in designing its twin friction transmission, which is illustrated herewith, the Bendix Company, 212 State street, Chicago, Ill., has recognized this. As a result they build it in but one size to transmit from 16 to 20 horsepower. Far greater efficiency is obtained by providing two sliding disks and in consequence two points of contact to carry the load and divide the wear and tear. As much less pressure is required between the friction surfaces, much of the tremendous strain to which this form of transmission is usually subjected, is eliminated, thus greatly lengthening the life of the working parts. By mounting the two friction wheels on independent countershafts the differential was entirely done away with, each of these shafts transmitting its power separately to the road wheels, the frictional contacts automatically compensating for any difference in speed between them in rounding curves. These two advantages are, of course, in addition to the numerous benefits claimed for the friction type of drive, such as the universal speed range, ease of getting under way and the like.

**McClellan Spray Hoods and Auto Tops.**—What the cape top is to the automobile in stormy weather the spray hood is to the launch far oftener, for a high wind, and particularly a head wind, is more conducive to a wetting than a heavy rain. Charles P. McClellan, Fall River, Mass., is one of the few manufacturers who makes a specialty of both lines, including jointless, sliding and melon spray hoods for launches and a variety of folding tops for automobiles. In the case of the former, the materials used are mildew-proofed army duck on steam-bent white ash bows, the metal fittings all being of nickel-bronze with lever-locking deck hinges; for autos, the tops are of khaki, mackintosh cloth or imitation leather with the bows finished in mahogany or the natural color and with the bow sockets of the same non-corroding metal, nickel-bronze. Records are kept of the measurements of all standard makes of cars in each year's models so that tops can be supplied for almost any car at short notice.



BENDIX TWIN FRICTION TRANSMISSION.

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